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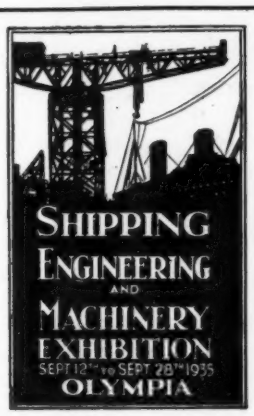

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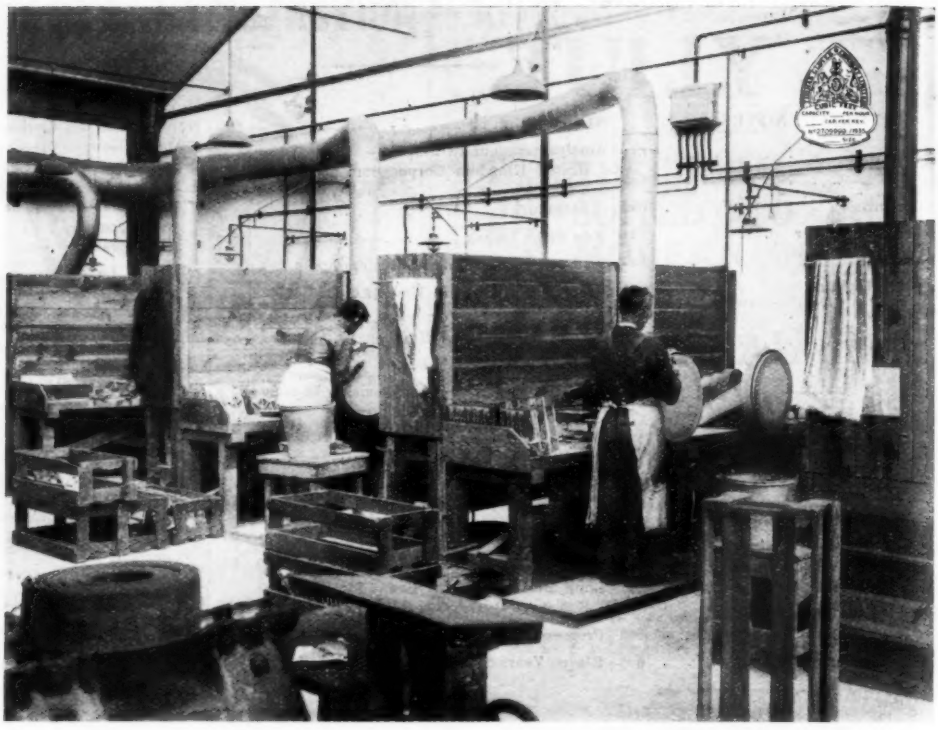

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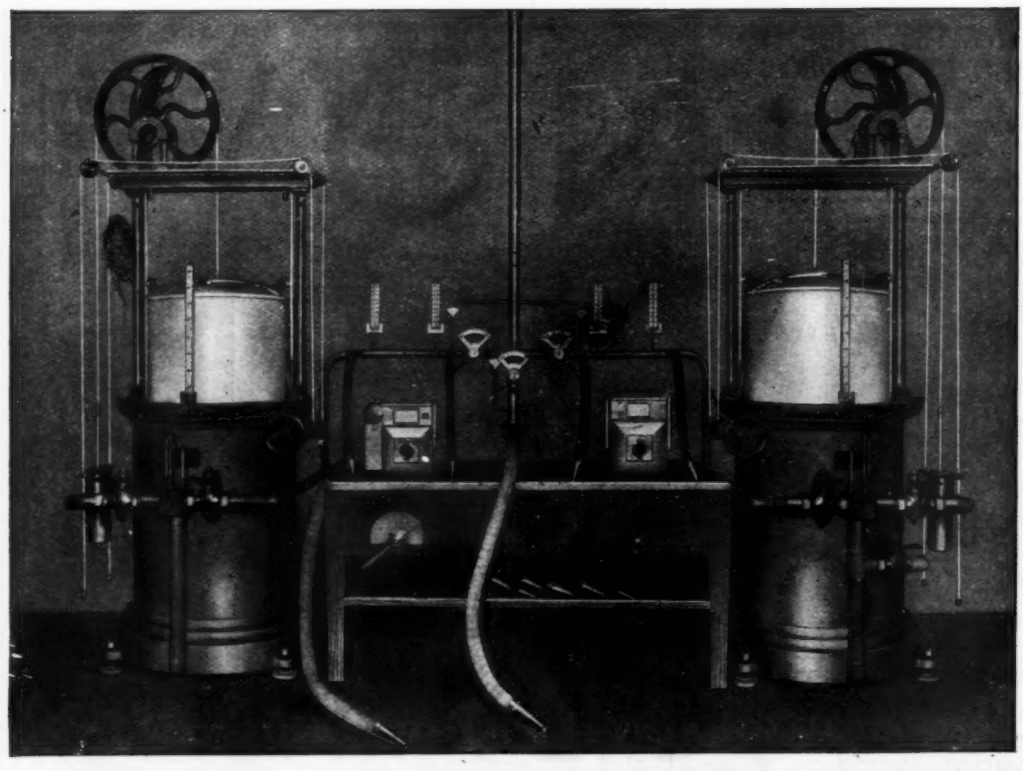

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Gas Journal

SEPTEMBER 18, 1935

Vol. 211. 87th Year No. 3774

Editorial Notes

The N.B.

So fresh are memories of a warm welcome and interesting events on that earlier occasion that it is hard to believe that six years have passed since the North British Association, under the Presidency of Mr. J. W. Napier, met in the mellow atmosphere of St. Andrews. Then Mr. George Bruce, Engineer and Manager of the Gas Company, and a Bailie of the City, had the entertainment of the many visitors as his special care. Last week Mr. Bruce had to carry his former responsibilities in addition to the onerous duties of President. Discharging them with characteristically quiet efficiency, he gave the maximum pleasure to all.

The business sessions were particularly well attended. Prof. William A. Bone was greeted by a packed house; and if, in his William Young Memorial Lecture, some missed the drive of the late Sir Arthur Duckham's "*Assidue exquirendo Servire*" or the practical politics of the Director of Fuel Research, all united in admiration of the ordered and academic mind which reviewed a life's work in combustion research. Research is on one flank of the Industry's attack; propaganda and sound sales methods are on the other. And a fitting complement of the lecture was the Paper on promoting gas sales, by Mr. Thomas Carmichael, Engineer and General Manager of the Portsmouth Gas Company, whose return visit to his Mother Association was so unfortunately shadowed by the event recorded in our Obituary Column to-day. Among contributors to the too brief discussion was Mr. Davis De Bard, of New York; and we have his personal testimony to his thorough enjoyment of the whole meeting.

The object of this note being to call attention to the high lights of the St. Andrews meeting, we must include a reference to the striking pronouncement which Mr. J. W. Napier included in his luncheon speech to the St. Andrews Gas Company. The difficulties of speaking out upon the vexed subject of grouping and amalgamations have all along been manifest; and it is very appropriate that such free judgment should be delivered in Scotland, where the problem has for some time been acute.

After a certain article in these columns last week, we might be diffident of a reference to the social side of the Scottish Meeting; but our case for the judicious admixture of pleasure and business was so well argued that we will conclude on a note of gratitude to all those who organized the lighter entertainment and helped to make another memorable N.B. Meeting.

Sales Promotion

It is a sign of the times that the Paper presented at the meeting by Mr. Carmichael, of Portsmouth, should be on the question of sales promotion. There can be no doubt that the future prosperity of the Gas Industry will depend in increasing measure on greater attention to the selling as distinct from the making of gas and the products which accompany its manufacture. Not that the manufacturing side must be neglected; many problems await solution, not the least of which is the further reduction of sulphur compounds in the gas supplied. Moreover, it is obvious that every economy effected on the works is an aid to salesmanship, and more rigid control of the works process an aid to ensuring a 100% gas service. But it must be admitted that the standard of efficiency already attained by the production side is far in advance of that reached by the selling side—and this in spite of the strides made during the past decade or so. We are still in need of a more balanced outlook on the functions of the Gas Industry and the means by which to assure its continued expansion; and in this regard Mr. Carmichael's contribution is of the highest importance.

Success will be achieved, maintains the author—and we agree wholeheartedly—only if in the first place our commodity is offered at prices which will secure business. This, of course, implies the putting into operation at once of attractive tariffs in the knowledge that the additional business will mean a lowering of overheads per unit of gas sold. It is apparent—indeed, it has been so for a long time now—that adherence to the flat rate is definitely a retrograde policy. Secondly, there must be nothing lacking in service after sales. Every undertaking which has organized itself properly in this respect recognizes the important part which after-sales service plays in selling gas. Again, it is essential that our advertising and publicity should be more generally attractive and forcibly presented. This means the spending of more money in this direction on both national and local propaganda; but the time must come when the Industry will realize how disproportionably small is the amount it expends on advertising as compared with that allocated by other businesses. A further necessary line of action is to employ a sufficient number of more highly-paid demonstrators and technically trained salesmen. Far greater encouragement will have to be extended to the sales personnel of our Industry, encouragement from the

point of view of status coupled with adequate remuneration. There remains too great a tendency to enjoy the task of pumping gas into the holder and to forget the reason for doing so—to pass it forward in ever increasing quantities to the district.

Mr. Carmichael's Paper is packed with useful suggestions which, put into practice, are bound to increase output and enhance customer satisfaction. It is unnecessary for us to dwell upon the efficiency of the sales organization of the Portsmouth and District Gas Company. It is an example of carefully built-up service planning executed with enthusiasm, and always with an eye to extension or modification in the light of current circumstances. There is nothing static about this salesmanship; and Mr. Carmichael gives generously of his wide experience of selling, as on other occasions he has dealt with making, gas. His hints on the lay-out of showrooms—and "to-day it is imperative that every gas undertaking, whatever its size, should have one or more well-designed and attractive showrooms"—will prove most helpful. He points to the value of a room primarily for use as a lecture hall for cooking demonstrations; where posssible it should be included in the designs for new showrooms. And in this regard, by lending the room from time to time to local organizations and societies, it can be made an effective publicity contact, as has been well proved at Portsmouth.

Salary and Commission

THERE is much help and inspiration to be derived from the author's comments on staff training as an aid to sales, on the payment of commission to salesmen and others who initiate new business, and on service before and after sales. Commission is paid at Portsmouth to each employee who initiates or secures an order. "Payment of commission," remarks Mr. Carmichael, "is in many places regarded with disfavour, but in my experience it has definitely increased sales." And we know sufficient of the methods in force at Portsmouth to appreciate that these sales have been carried through to the consumers' satisfaction. A phase of service to the consumer which is much appreciated in Portsmouth is that rendered by the Women's Advisory Department. This Department consists of a fully qualified staff under an able and experienced head; and through their work advantageous contacts are continually being made with the consumers. To use the author's words, "a most effective way of rendering service and of advertising gas." Another matter on which Mr. Carmichael touches is trader co-operation, which is practised to a much greater extent in America than in this country. We have had a good deal to say on this subject recently in the "JOURNAL," and in our opinion such co-operation ought to be fostered, with, of course, due care that a standard of fitting work in all respects satisfactory is maintained. Here again we quote from the Paper under review: "The promotion of gas sales through dealers is of sufficient importance to recommend that all undertakings' sales managers review their present system, or in the absence of a system consider the advisability of adopting one. The more people we can get talking intelligently about gas appliances, and through them about gas, the greater will be gas sales, and any effort expended along these lines must prove fruitful." Which adds point to our insistence that it is urgent that no stone should be left unturned to ensure that all both within and outside the Gas Industry are "gas minded." There is much to be done yet in this direction.

Replacing the Black Cooker

FINALLY we must refer to what is being done at Portsmouth to replace the unattractive black cooker—out of step in the march of competition—with a more efficient appliance pleasing to the eye and therefore in consonance with modern demand. The author's consideration of this question constitutes not the least important section of his Paper. Recognizing the selling value of appearance as well as performance of gas appliances, the Portsmouth Undertaking recognized at the same time that black cookers purchased five years ago, renovated and brought up to date by fitting new high-efficiency hotplates, were from the efficiency point of view quite satisfactory. From this angle, indeed, it was considered that scrapping was not justified. On the other hand, attention had to be given to appearance—a cleaner and brighter appliance. Experiments were made with mottled heat-resisting enamels, and eventually a metallic paint was evolved which is now known as "Oxi-di-Silver." After extended trials it was decided that the most economical and convenient way of overcoming the objection to the black cooker would be to finish all hired appliances in this manner. It is good, but not surprising, to learn that the introduction of the "Oxi-di-Silver" coloured cooker has been very helpful to the Sales Department in retaining the use of cooking stoves and in displacing many all-enamelled electric cookers. One of the great advantages of the system is that a consumer who purchases a stove in "Oxi-di-Silver" finish can have the cooker renovated—at a very small cost—equal to the finish and condition as on the day it was purchased.

A Fine Display

IN comparison with its predecessor of two years ago, the thirteenth of the series of Shipping, Engineering, and Machinery Exhibitions, which opened at Olympia last Thursday, is being held in circumstances of comparative prosperity. The heavy trades are recording increased activity, while shipbuilding is showing definite signs of recovery. Indeed, indications are not lacking that the industries represented at this comprehensive Exhibition—and they are many—are rapidly approaching normal conditions. There is a spirit of confidence abroad which the organizers of the Exhibition feel will be reflected in the order books of the exhibitors, while a further cause for gratification lies in the fact that never before in the whole history of the Exhibition have there been so many overseas visitors.

It is fitting, therefore, that the Gas Industry should play so prominent a part in this Exhibition with a co-operative display organized by the British Gas Federation. Favourable comments on the gas exhibit have been heard on all sides, and that they are not undeserved will be clear from the description with which we have attempted to do it justice on later pages of this issue. The main impression gained by an inspection of this splendid display is that the stand is definitely indicative of progress and of an Industry well organized to advise its consumers on every problem connected with the industrial utilization of gas. As the Federation's first effort on a large scale, it may truly be said that they have achieved signal success in the staging of a show fully worthy of a great Industry. The layout is on a strikingly lavish scale, with the exhibits, covering an area of nearly 7,000 sq.ft., appropriately sectionalized into groups representative of various phases of industrial gas processes. Pleasing mural representations in colour give impressions of the service gas renders to industry and add a finishing touch to a remarkable display.

If further comment is necessary in regard to the B.G.F.

display as a whole, it is one of congratulation to the National Bodies of which the Federation is composed upon their co-operation and enterprise in staging so excellent a show. It is only natural that the firms which are members of the Society of British Gas Industries should have supported their national organization in such splendid fashion in playing its part in this big display venture of the B.G.F. The gratitude of the Industry must, however, be extended also to those who are not members for their part in making the exhibit as comprehensive as possible. We believe that there would be a hearty welcome for many of them within the Society, and maybe the success of the present venture will induce them to contemplate such a step. By membership of the Society they would be still further closing up the ranks within the British Gas Federation, and they may well consider, with us, that every such strengthening of "the one voice" will help towards that Gas Industry prosperity in which they have shown such lively interest at Olympia.

For Better Public Lighting

TWELVE years is not a great span in the life of an individual or of an organization, but it is a space within which much may happen, and this has been the experience both of the public lighting engineer and of his own especial body, the Association of Public Lighting Engineers. As an individual the public lighting engineer has come much more into the public eye, and as a body his association has found itself called upon to play an increasingly important part in the life of the community. Always desirable, good public lighting is to-day a sheer necessity, and must be regarded from no other standpoint. This is the change that has come about—gradually at first, but with ever-increasing rapidity, until at last the stage has been reached where the public lighting engineer and his Association cannot be done without. That public lighting, from being more or less an amenity, has become a necessary part of modern life, is a fact that is being faced up to by the public lighting engineer and the Association; but that is not sufficient. It has to be recognized more generally than is now the case by those in whose hands lies the furnishing of the money required for the adequate illumination of the country's highways.

Thanks to individual and organized effort, public lighting suited to the traffic conditions of to-day is available. Why, then, is it not more widely utilized? Must it remain a question of cost, while money in plenty can be found for less essential services than the preservation of life and limb? A better reason than that should exist, if any avoidable measure of insecurity is to beset our thoroughfares during the hours of dusk and darkness. Useless, too, to argue that these are the less busy hours; for Mr. A. Maurice Bell, of the Tottenham and District Gas Company, in his Presidential Address to the Association of Public Lighting Engineers [reported in the "JOURNAL" last week] provides a convincing answer. After quoting certain facts from the recent report on road accidents prepared by the police throughout the country for the Ministry of Transport, he says: "From these deductions the conclusion arrived at is, in fact, that the worst period falls between sunset and darkness, or during and just after the change-over from natural to artificial light, before road users become accustomed to the altered conditions of visibility rendered by (shall I say?) good, bad, or indifferent public lighting. . . . If it be true, as a recent enquiry in the United States has suggested, that 'the night-hazard is roughly four times the day-hazard,' the need for good road lighting is surely evident." Again, Mr. Bell tells us that one fact which seems to emerge from the investigation of statistics is that the proportion of accidents occurring at night has tended to increase year by year. The volume of night traffic has, of course, risen enormously; and however eagerly a reduction of this volume would be welcomed by light sleepers whose houses abut on main roads, it is to be feared the tendency will be towards still further increase. Hence one cannot avoid the President's inference that good artificial lighting on the roads is even more important to-day than in the past.

Uniformity and Cost

GOOD artificial lighting on the roads, as a general practice, cannot be arrived at without the securing of greater uniformity. In this connection, the President of the Association of Public Lighting Engineers entered a plea for the elimination of abrupt changes such as may occur in passing from one road to another, or even within a few miles on the same road, when this is lighted by different authorities. These extreme divergences, as he pointed out, arise not only from varying intensities in the lights themselves, but also from the variety of positions assigned to them and other departures in method. But anything like widespread uniformity seems too much to hope for without some alteration in the method of meeting the cost. This is really the *crux* of the matter, though the difficulty, perhaps, is less one of amount than of incidence. With the population treated as a whole, the problem appears to be by no means formidable. At a luncheon given to the Association of Public Lighting Engineers by the Gas and Electric Supply Industries, Sir Francis Goodenough remarked that, for a population of about 50 millions, the local authorities have put up some $1\frac{1}{4}$ million public lamps, and assuming the average running costs of these lamps to be £4 each per annum, the yearly expenditure for the lighting of the streets comes out at about 2s. per head of the population. "That," continued Sir Francis, "is one of the cheapest forms of insurance against accident that can be imagined. But it is not enough, and I need not emphasize the danger of under-insurance. Would it not be in the interests of the community if we spent on this service 4s. a year per head of the population?" Undoubtedly it would be, and it could be, easily done, if the questions of uniformity and of spreading the burden of cost were considered together.

The President makes no secret of his view that the cost of such public lighting should be met out of a common fund, to which local and county authorities should contribute, and which should be aided by a generous contribution from the Road Fund. Sir Francis Goodenough, at the luncheon already referred to, stated that the doubling of the expenditure per head on public lighting would produce, not double, but three or four times the present candle power; and he declared that the $2\frac{1}{2}$ million motorists and motor cyclists, who are directly interested in the illumination of the roads, would be agreeable to some of their taxation being awarded to public lighting. On the same occasion, Mr. A. C. Cramb agreed that the progress of street lighting is bound up with the problem of cost; while Sir Henry P. Maybury, alluding to the President's remarks on the burden of charge, said to the members of the Association: "Some day not far distant your desire for equity will be achieved, and you could pursue your endeavours with persistence." Again: "An ever-increasing amount of traffic is finding its way on to the less important thoroughfares, where admittedly the public lighting is not good."

When presiding at a subsequent luncheon to the Association given by the Tottenham and District Gas Company, Mr. Henry Woodall, the Chairman, also expressed

the view that the President's suggestion of " another raid on the Road Fund " was not unreasonable, and he pointed to the fact that at the present time a great deal of the best public lighting is carried out at very little more than cost. In any case, the expenditure is one which should be fairly met.

We have touched here upon what may be regarded as the main theme of the annual meeting of the Association of Public Lighting Engineers, but the whole of the proceedings demand careful consideration by readers of the " JOURNAL," who will also be keeping in mind the early anticipated report of the Committee set up by the Ministry of Transport to enquire into the subject of public lighting, with special reference to the convenience and safety of traffic. Everything points to early and sustained activity in the street lighting field, and if the Gas Industry is not on the alert to seize every opportunity that may present itself of providing improved illumination—or even to make such opportunities, if need be—subsequent regrets will be futile. Better street lighting will be demanded; gas can completely fill every requirement, with economy and with unfailing reliability. Is every committee-man, every public lighting engineer, and every local and county official convinced of this fact? If not, why not?

Home Ownership

IT would probably pass unchallenged if one asserted that the three greatest financial incentives to thrift which our country has ever experienced are national savings certificates, the Post Office savings bank, and the building societies. In amounts of money involved it would be easy to place the three in their relative positions, but when it comes to questions of importance of functions and of power for good one might find it difficult to name the three movements in strict order of merit. For ourselves we might be disposed to award pride of place to the building societies, whose beneficent activities have, at any rate, become nation wide, and who exercise a daily increasing influence for good in the homes of the people. Be that as it may, however, the selection is not one that we feel called upon to make here. Each of the movements makes its own special appeal, and it happens to be the building societies that particularly appeal to us.

The Post Office savings bank has long been a national institution. So has the building society movement, to some extent, though it is only of late years that it has secured its present world-wide recognition. Savings certificates, on the other hand, are a comparatively recent introduction. Almost instinctively one knows that there is a Post Office savings bank, but, even so, fresh facilities are from time to time being introduced to assist depositors, of which we are inclined to think that the public are not always sufficiently informed. Lack of information is an error into which neither the building societies nor the saving certificate authorities have fallen. Each of these two movements has achieved its present huge dimensions mainly through Press publicity and propaganda. In stressing the importance of Press advertising in this connection, we may be accused of bias in its favour, but the same charge can hardly be levelled at those who are called upon to " foot the bill." So we will repeat what was said a few days ago by Sir Enoch Hill, the President of the Halifax Building Society, at the International Congress of Building Societies at Salzburg.

In spite of the fact that the building society movement in Great Britain is well over a century-and-a-half old, the beginning of the great expansion movement came at a much later date, and Sir Enoch told his audience that " there was no serious collective effort to secure adequate publicity until ten years ago. It was the Publicity Committee appointed as the result of a recommendation in the report of the National Association of Building Societies in 1926 that secured widespread recognition for the movement. Propaganda consisted mainly of advertising in the newspapers and various other periodicals, the distribution of literature, and posters. The investing public became building society conscious, and the great increase in the funds of nearly all the societies was unequivocal evidence of the success of advertising." Here is testimony which we are glad, indeed, to be able to place on record.

So much for our personal interest in the gigantic proportions assumed by the building society movement. The Gas Industry can view it with equal satisfaction from quite another angle. An owner will take more interest in a house than would a tenant, and this means that he will be prepared to spend more money upon modern fittings and fixtures, many of which may be gas consuming. A home owner becomes increasingly a home lover, and a home lover is going to spend more time in his home. All this must spell gain to the Gas Industry. And then, of course, there is the benefit to the Industry indirectly through the wider aspect. At the end of 1934, the building societies of the United Kingdom administered over a million accounts representing borrowers currently purchasing their homes—all of them citizens with a growing sense of responsibility, through becoming property owners. During the post-war years a total of £950,000,000 has been advanced, which has provided assistance for the purchase of about 1,500,000 new houses, together with many other properties. The vast number of people thus represented have been given a tangible stake in the country through the enterprise of the building societies, whose efforts to popularize home ownership must be energetically seconded throughout the Gas Industry by such service as will foster the home-loving spirit. The easy chair and the efficient gas-fire are among the most potent aids.

Forthcoming Engagements

Sept.

19.—I.G.E.—Refractory Materials Joint Committee, 2.30 p.m.
19.—WALES AND MONMOUTHSHIRE ASSOCIATION.—Autumn Meeting at Porthcawl.
19.—S.B.G.I.—Council Meeting at 11 a.m.
20.—NORTH OF ENGLAND ASSOCIATION.—Autumn Meeting at Whitby.
20.—SOUTHERN ASSOCIATION (WESTERN SECTION).—Commercial Meeting at Dartmouth.
26.—I.G.E.—Joint Lighting Committee, 2.30 p.m.
27.—I.G.E.—Liquor Effluents and Ammonia Committee, 11.15 a.m.; Joint Research Committee, 2.30 p.m.
28-Oct. 1.—B.C.G.A.—Annual General Meeting and Conference at Edinburgh.

Oct.

4.—I.G.E.—Research Executive Committee, 2.30 p.m.
7.—I.G.E.—Finance Committee, 1.45 p.m.; Membership Committee, 1.45 p.m.; General Purposes Committee, 3.15 p.m.; Benevolent Fund Committee of Management, 4.30 p.m.
8.—I.G.E.—Council, 10 a.m.; Gas Education Committee, 4 p.m.
9.—I.G.E.—Gas Education Executive Committee, 10 a.m.; Council, the British Gas Federation, 10.30 a.m.; Board of Examiners, 2.30 p.m.
17.—B.C.G.A.—Midlands District Conference at Wolverhampton.
17.—EASTERN COUNTIES ASSOCIATION.—Autumn Meeting at the Stanton Ironworks Company, near Nottingham.
17.—SOUTHERN ASSOCIATION (EASTERN DISTRICT).—Meeting at 28, Grosvenor Gardens, S.W. 1.
18.—MANCHESTER DISTRICT ASSOCIATION.—Meeting at Midland Hotel, Manchester, at 2.30 p.m.
19.—SCOTTISH JUNIOR ASSOCIATION (WESTERN SECTION).—Visit to Messrs. Thomas Glover & Co., Ltd., Edmonton.
26.—WESTERN JUNIOR GAS ASSOCIATION.—Meeting at Bristol.
29.—B.C.G.A.—Eastern District Conference at Peterborough.

PERSONAL

Glasgow Corporation Gas Committee have appointed Mr. C. W. C. McFarlane, formerly Assistant Manager, to the Managership of the Dawsholm Gas-Works.

* * *

We learn that Mr. William C. Campbell, at present Assistant Engineer at Helensburgh, has been appointed Engineer and Manager at Buckie in succession to Mr. Peter M. Sim. Mr. Campbell, who is a native of Falkirk, served his apprenticeship under Mr. H. G. Ritchie, Engineer and Manager to the Falkirk Gas Department.

* * *

On the occasion of his leaving Buckie, Mr. Peter M. Sim, Engineer and Manager of Buckie Gas Light Company, was presented by the staff with a chiming clock.

* * *

Mr. W. J. Savage, A.M.I.Chem.E., has been appointed Engineer and General Manager to the Oriental Gas Company, Ltd., in place of Mr. E. Garsed, who has retired owing to ill-health. Mr. Savage was trained at Birmingham under the late Dr. W. B. Davidson and served under Dr. E. W. Smith. He was Chemist of the Saltley Works in 1915 when he left to become Chemist to the Rochester, Chatham, and Gillingham Gas Company under Mr. C. Valon Bennett. At the end of 1919 Mr. Savage left for Calcutta to take up an appointment as Chief Chemist and General Assistant to the Oriental Gas Company, Ltd. In 1930 he was appointed Assistant Manager to the Company, which position he has held to date.

* * *

We are informed that Mr. Cecil H. Chester, F.C.S., General Manager and Secretary of the Swindon United Gas Company, has been elected a Director of the Swindon and District Gas Corporation, Ltd.

* * *

Alderman G. Owen, of Stafford, who has been Chairman of the Stafford Council Gas Committee for eight years, has been invited, and has accepted the invitation, to become Mayor of the Borough next year.

OBITUARY

Mr. T. H. F. Lapthorn, J.P.

It is with much regret that we have to record the death of Mr. T. H. F. Lapthorn, J.P., Chairman of the Portsmouth Gas Company, at a nursing home at Ryde, Isle of Wight, on Sept. 11, at the age of 75. Mr. Lapthorn was one of Portsmouth's best-known and most greatly respected

citizens, and for upwards of forty years he was a leading figure in the professional, business, political, and philanthropic life of the city. He was a solicitor by profession, and continued in practice until about four years ago.

By the employees of the Portsmouth Gas Company, of which he first became a Director some 26 years ago, his name will always be respected, for he took the greatest interest in the welfare of the staff, and not long after his election as Chairman sixteen years ago he announced the introduction of a contributory pension scheme for all the employees. Last year, to mark the completion of a quarter of a century on the Board, the staff and employees made him the guest of honour at a dinner at the Portsmouth Guildhall. Before Mr. Lapthorn's fatal illness, the Company had completed arrangements for a merger with the Gosport Gas Company, and although he was unable to take the chair at the shareholders' meeting at which the terms of the amalgamation were approved, he sent a message of good wishes commending the proposal.

Mr. Lapthorn was also Deputy Chairman of both the Portsmouth and the Gosport Water Companies, and since 1900 had been the President of the Portsmouth Liberal Federation. In November, 1922, he stood as Liberal candidate for North Portsmouth, but was unsuccessful in a three-cornered contest. He had been a magistrate since April, 1905, was a past President of the Portsmouth Free Church Council, served on the Management Committee of the Royal Portsmouth Hospital for more than 30 years (for eight years as Chairman), and was a Vice-President of the Hampshire County Cricket Club. He leaves a widow and three daughters.

* * *

The death occurred on Aug. 27 of Charles E. D. Valon, of whose career Mr. Arthur Valon writes to us as follows:

Charles was my younger brother, being the fourth of five sons. He was a pupil at the Leicester Gas-Works under Alfred Colson, and was afterwards a Junior Assistant there. In 1914 he was appointed to the post of Chief Assistant at Bath, but the war broke out, and as a sergeant in the Leicestershire Yeomanry he was called up and went to France with his regiment in the autumn. In February, 1915, he was hit by a bullet that damaged the vertebræ at the top of the spine. In fact, the neck was broken, although it was a long time before this was discovered. As a result he was paralyzed but recovered to some extent, becoming able to walk a little and to use his hands to a small extent. A very eminent surgeon told me that there were plenty of cases of men living with broken necks, but that Charles was unique in that his condition improved subsequently. His brain was quite unaffected, and although unable ever to fill an executive post again he, with the help of a devoted wife, built up a new life of active intellectual interests that were pursued to the end.

CORRESPONDENCE

Gas at the Shipping, Engineering, and Machinery Exhibition

Sir,—May I recommend, very strongly, everyone interested in the development of the industrial and commercial uses of gas—and who of your readers is not?—to pay a visit to the splendid Shipping, Engineering, and Machinery Exhibition that opened at Olympia, London, last Thursday, and remains open until Sept. 28; and to have a good look at the Industrial Gas Exhibit in the gallery, organized for and in the name of the British Gas Federation.

The Industrial Gas Development Centres—representatives of which, under the general supervision of Mr. W. H. Becket, of the Gas Light and Coke Company, have designed, brought into being, and are staffing this exhibit—are to be congratulated very heartily on their work which constitutes a splendid piece of service to the Industry, on behalf of which I should like to tender them most cordial thanks.

Yours, &c.,
Francis Goodenough,
Chairman of the Exhibitions Committee,
The British Gas Federation.
28, *Grosvenor Gardens, S.W.* 1,
Sept. 14, 1935.

Colonel Carr Speaks Out

A "JOURNAL" Interview with the Institution President

In an interview with the "GAS JOURNAL," Colonel Carr expresses his aims during his year of office as President of The Institution of Gas Engineers, and replies to questions put to him on leading topics of the hour.

At the Annual Meeting of the North British Association of Gas Managers, at which the Paper presented by Mr. Thomas Carmichael dealt exclusively with the Promotion of Gas Sales, we took the opportunity of putting a few questions to Colonel W. M. Carr, as President of The Institution of Gas Engineers; and we feel sure that his answers, freely given, will be of the greatest interest to our readers.

Asked of his aims during his year of office, Colonel Carr replied:

"At the beginning of my year as President of The Institution of Gas Engineers I am resolved to exercise the functions of my office to direct the work of the Institution to a greater extent to the problems arising in connection with the utilization and marketing of gas. In the past, problems of engineering considerations in regard to manufacture have predominated at our meetings and have formed the basis of the greater part of the research work."

Do you agree with our view, we enquired, as to the lack of proper balance between making and selling gas?

"I believe," he answered, "that most of us occupying managerial positions are inclined to devote far too much of our time to manufacture, which, with modern plant, should be operated under a routine control requiring the minimum attention of the chief official, with whom problems of utilization and marketing should predominate to the extent of at least 80% of his working hours in the case of undertakings under unified control. It is significant that, in consequence of this predominance of manufacture, the candidates for the Institution examination in Gas Supply are very much in the minority, whereas in existing circumstances they should be, if anything, in the majority in view of the urgent need of trained technicians for the promotion of domestic and industrial sales."

And how do you consider business is to be gained?

"The excellent Paper submitted by Mr. Carmichael," replied the President, "comes at a most opportune time, and will be welcomed by the whole Industry. The Paper is a clear and concise enunciation of the present position, and Mr. Carmichael indicates in sequence the methods to be adopted to meet what he rightly calls the 'greater need' for a fuller concentration upon Sales and Utilization of Gas. He stresses the urgency of all Undertakings introducing without delay competitive tariffs to suit varying local circumstances. He indicates the necessity of following up the national work of the British Commercial Gas Association by effective local propaganda and service, the adoption of staff training as an aid to sales, the methods of service to ensure the consumer satisfaction, and, finally, the necessity for the employment of highly paid demonstrators and technically trained salesmen."

Views on Holding Companies.

What, we asked, is your opinion on the effect on the Gas Industry of Holding Companies?

"It is inconceivable," said Colonel Carr, "that financial interests seeking investment in the Industry will jeopardize their investments by setting up a purely financial administration without technical control, and there is no reason to believe that the large financial investor will be less concerned in conserving the value of his securities than the small investor. It is essential, however, that Holding Companies should, in the main, be administered under the direction of a personnel having the widest knowledge and experience of the Gas Industry.

"The technical direction," he continued, "should commence from the outset in ensuring that the purchases of shares are based on a true valuation of maintainable profits, and at a price which will not discount any economies resulting from grouping which should go to the benefit of the consumer, and, indirectly, the shareholder. The Holding Company should, before endeavouring to acquire undertakings, prepare a definite geographical plan for their operation in prescribed areas with a view to linking up where economic.

"It is, in my opinion, essential that the Holding Company should maintain the responsibility of the Chief Official on the spot, whose responsibilities should be increased rather than decreased, with an incentive to reach desired standards. The senior officials in grouped areas should, I consider, be formed into working administration boards to assist co-ordination and effect economies in combined selling. It is in this direction that Holding Companies can be of the greatest service to the Industry in providing, from a central source, a highly trained technical sales personnel that can be called upon by their undertakings to advise and assist in the setting up of promotional tariffs and the development of industrial and domestic sales organization on a scale impossible to the undertaking operating as a separate unit. It is necessary to secure the enthusiasm and loyalty of officials of all departments, whether it be in the Chief Official or those under him, and each should have the responsibility of his job.

"I, myself," concluded Colonel Carr, "am just beginning to learn a little of how to sell gas, which, in the past, as Mr. Carmichael rightly said, sold itself, and it is in the development of sales organization that I believe Holding Companies should render the greatest service to the Industry."

National Smoke Abatement Society

Among the representatives of the Gas Industry attending the Annual Conference of the National Smoke Abatement Society at Bristol from Sept. 19 to 21 will be Mr. A. L. Holton, Chief Engineer, Manchester Gas Department; Mr. W. L. Nicol, London and Counties Coke Association; Mr. B. J. Bell, Cardiff, British Commercial Gas Association; Ald. J. H. Waddington and Mr. W. B. McLusky, Halifax Gas Department; Mr. R. C. Taylor, Torquay, and Mr. James Taylor, Weston-super-Mare, National Gas Council; Mr. G. J. Greenfield, Sheffield, Coke Oven Managers' Association; Mr. Robert Robertson, Bristol, and Mr. J. Wesley Whimster, Bath, Institution of Gas Engineers.

The whole of the Friday morning session will be devoted to consideration of a Paper by Dr. R. Lessing on causes of atmospheric pollution, and, at the afternoon session, Mr. G. L. Jennings will deal with gas equipment in a discussion on smokeless heating in housing schemes.

News in Brief

Application is recommended to be made to the Minister of Health for sanction of a further loan of £10,000 in respect of the provision of gas meters by the Walsall Town Council Gas Committee.

Among the Entries at the Hastings Carnival was a striking display of gas floodlighting by the Hastings and St. Leonards Gas Company on a car embodying a lighthouse in an effective design.

"**Gas in Maternity Home and Clinic**" is the subject dealt with in the latest publication of the "A Thousand-and-One Uses for Gas" series published by the British Commercial Gas Association.

Applications are Invited for the position of Showroom Manager at a commencing salary of £300 per annum by the Dundee Corporation Gas Department. Further particulars will be found in the advertisement columns of this week's issue.

The Manchester District Association of Gas Engineers are holding their next meeting at the Midland Hotel, Manchester, on Friday, Oct. 18, when a Paper will be delivered by Mr. C. Bateman, of Harrogate. Luncheon will be served at 1 p.m.

An Increased Output of 8% for the first three months of the financial year, compared with the corresponding period last year, was reported recently by A. W. Farquhar, Engineer and Manager of the Fraserburgh Town Council Gas Department.

Mrs. Eileen Murphy, Director of Home Service, British Commercial Gas Association, contributed to the series "The Gas Industry as a Career" in the September issue of the *Journal of Careers*, dealing with the subject of women's activities.

An Increase of 11·3% in the quantity of gas manufactured during the months July and August as compared with the same period last year was reported at a meeting on Sept. 11 of Dunbar Town Council by the Engineer and Manager, Mr. G. Urquhart.

In Voluntary Liquidation.—We learn from a local correspondent that the Staindrop Gas Company, which for 81 years has supplied gas to the village of Staindrop (Durham) has gone into voluntary liquidation and production will cease on Sept. 19.

Gas Continues at Newport (Salop).—The Newport (Salop) Urban Council have accepted a quotation from their Gas Committee to light the town from Sept. 7, 1935, to May 8, 1936, and provide five new lamps at a total cost of £325 15s. subject to a discount of 2½%.

Modern Methods of Welding is the subject of a Paper to be presented by Mr. C. H. Davy at the Opening Meeting of the Institution of Chemical Engineers to be held in the Rooms of the Chemical Society, Burlington House, Piccadilly, W. 1, on Wednesday, Oct. 9, at 6 p.m.

A Sum of £1,000 allocated from the profits of the Sedgley (Staffs.) Gas Committee is to be devoted to the provision of apparatus for the children's playing fields, subject to the approval of the Public Works Committee. An avenue of trees is another proposal to be paid for from the same source.

Despite the Increasing Use of electricity in Switzerland, the Swiss Association of Gas and Water Engineers reports that there was an increase of 4,521,800 cu.ft. in the quantity of gas produced at the various gas-works in the country during the first six months of the present year as contrasted with the first half of 1934.

A Ten-Years' Lighting Contract has been secured by the Lutterworth Gas Light and Coke Company, Ltd., who recently completed their five-years' contract. Improved lighting has been effected at a lower cost. The whole of the maintenance, cleaning, &c., is done by the Company, and all the lamps are operated by "Newbridge" controllers.

The Annual Report on Liverpool's Public Lighting by Mr. P. J. Robinson, M.Eng., M.I.Mech.E., M.I.E.E., the City Lighting Engineer, states that there are now 16,692 gas against 13,983 electric lamps, although during the year 422 gas lamps were replaced by 655 electric ones. The total number of gas mantles used during the year was 89,234, equalling an average of 3·56 per burner against 3·55 last year. The gas consumed amounted to 911,035 therms or 191,796,900 cu.ft.

The Floodlighting of Castle House and the High Kirk by the Dunoon Gas Committee will be continued to Sept. 28.

The Purchase of the local Gas Undertaking is to be considered by the Markinch Town Council. It has asked the Works Committee to take steps to assess the value of the Undertaking and report.

Coke Oven Gas for Glasgow?—It is reported in Glasgow that the Corporation is to open negotiations with Messrs. Dixon & Co., ironmasters, for a supply of coke oven gas. Messrs. Dixon are installing a £300,000 coke oven plant in their Works at Polmadie, Glasgow. The plant will, we understand, be in operation at the beginning of the year.

"**A Pretty Kettle of Fish**" is, perhaps, how Gilbert and Sullivan would have described the chaos that resulted when an explosion and fire at the North Metropolitan Power Company's £1,000,000 generating station at Enfield on Sept. 10 caused a failure of electric current for periods varying from fifteen to seventy minutes at Edmonton, Enfield, Ponders End, Tottenham, Wood Green, Palmer's Green, Harringay, New Southgate, Watford, and St. Albans. Factories dependent on electrical power ceased working, electric trains on the Cockfosters extension of the Piccadilly line were held up, seven tramway services ceased, traffic lights gave the police a busy time, hospitals had to carry on operations by daylight (fortunately available), and cinema programmes were interrupted.

Whitburn Gas Lighting.—At the monthly meeting of Whitburn District Council a letter was submitted from the Fauldhouse Gas Company stating the terms which they were prepared to accept for the full control of lighting the Fauldhouse district. After consideration it was remitted to the Fauldhouse Lighting Committee to arrange a meeting with Fauldhouse Gas Company, with a view to obtaining more favourable terms. A communication from the County Council was submitted stating that no appeals had been lodged regarding the proposal to form the village of East Whitburn into a special lighting district and that the Council could now proceed with the erection of the lamps. An offer to supply light, and maintain nine lamps in the village at a cost of £30 per annum was submitted from Armadale Gas Company, Ltd., and accepted.

Amalgamation and Grouping

United Kingdom Corporation and Scarborough —

Close Brothers, Ltd., Secretaries of the United Kingdom Gas Corporation, Ltd., report that the Corporation's offer to the Stockholders of the Scarborough Gas Company to purchase their Stocks has been accepted to the extent of 77·3% of the 1867 preference stock, 91% of the consolidated ordinary stock, and 94·5% of the new ordinary stock.

—And Aylesbury.

The Corporation's offer to the holders of the consolidated ordinary stock of the Aylesbury Gas Company has been accepted to the extent of 87·96%.

New Stock Issues

The United Kingdom Gas Corporation, Ltd., are placing through their brokers, Messrs. Haes & Sons, 124, Old Broad Street, E.C. 2, £400,000 3½% debenture stock at par, redeemable on Oct. 1, 1960, at 102, and 100,000 4½% £1 preferred ordinary shares at 21s.

The debenture stock is covered as to capital three times and as to interest over four times. The interest on the preferred ordinary shares, after payment of interest on prior charges, is covered over three and a half times.

Sir Leonard Hill and the Flueless Room

In the course of his Presidential Address to the Sanitary Inspectors' Association at Weymouth on Sept. 3, Prof. Sir Leonard Hill, F.R.S., condemned the practice of building rooms without flues.

Referring to the necessity of fresh air as a means of maintaining health, Sir Leonard declared, "The building of flueless rooms warmed by wires electrically heated and ventilated by an air-brick is against the health and vigour of the race."

National Gas Council

Meeting of the Central Executive Board

A meeting of the Central Executive Board of the National Gas Council was held at 28, Grosvenor Gardens, London, S.W. 1, on Tuesday, Sept. 10, at 2.30 p.m. The Chair was taken by Councillor G. H. KITSON, Vice-Chairman of the Board.

British Gas Federation.

A report was submitted of the meeting of the Council held on July 10.

Exhibitions.—A report was received from the Exhibitions Committee dealing with the following matters—viz.:

(i.) *British Industries Fair, 1936.*—It was reported that the Birmingham section of the British Industries Fair would be held next year in the month of February and not in the month of May, as it was this year.

The Committee recommended participation in the Birmingham Fair on the lines of the Gas Industry Section prior to 1934, but, on this occasion, the section to be under the ægis of the British Gas Federation. The Exhibitions Committee were requested to take the necessary steps to complete arrangements for a gas exhibit next year.

Gas Conference.—It was also agreed that a Gas Conference should be held at the Fair as on previous occasions.

(ii.) *Shipping, Engineering and Machinery Exhibition, Sept. 12-28, 1935.*—It was reported that plans had been approved for an exhibit entitled "British Gas Federation—Industrial Gas Exhibit," and that arrangements were being made with the assistance of the Industrial Technical Sub-Committee whereby the stands would be staffed by experts from the Industrial Centres. Manufacturers were also being asked to assist by the loan of apparatus.

(iii.) *Hotel, Restaurant, and Catering Exhibition, Nov. 29-Dec. 6, 1935.*—It was reported that space had been taken at this Exhibition by members of both the supply and manufacturing sides of the Gas Industry.

A Gas Information Bureau would also be established.

(iv.) *Agricultural Shows.*—It was reported that arrangements were being made by the British Commercial Gas Association to co-operate with local gas undertakings for the purpose of seeing that gas is represented at these shows.

(v.) *Ideal Home Exhibition.*—Steps which were being taken to stage an exhibit and a Gas Information Bureau at this Exhibition were reported.

Meeting of the Central Gas Advisory Board Held on July 23.

A report was submitted with regard to the proceedings at the Third Annual Meeting of the Central Gas Advisory Board, which was followed by the usual meeting between members of the Board and officials of the Board of Trade.

Scottish Executive Board.

The steps which had been taken to recommend the setting up of a Scottish office with a resident officer were reported and approved.

It was also reported that arrangements had been made for the President of the Council, Sir David Milne-Watson, to address representatives of Scottish Undertakings at the Freemasons' Hall, George Street, Edinburgh, on Monday, Sept. 30, at 12.30 p.m.

Meeting of the Council of the Conjoint Conference Held on July 11, 1935.

(*a*) *Land Drainage Act, 1930.*—It was reported that the Conjoint Conference had been in communication with the Association of Catchment Boards regarding the assessment of Public Utility Undertakings for the purpose of endeavouring to draft a national agreement.

It was pointed out that where it was found necessary to make some arrangement with local Drainage Boards regarding the assessment of a Public Utility Undertaking, such assessment should be only temporary and provisional pending the settlement of a national agreement.

(*b*) *Mains and Cables in Highways.—Attitude of County Councils.*—Pending the re-opening of negotiations for the settlement of a Highway Clause, undertakings were advised not to accept protective highway clauses submitted by County Councils without first communicating with the Council.

(*c*) *Appointment of Small Parliamentary Committee.*—It was reported that the work of the Conjoint Conference had developed so rapidly that it had become necessary to appoint a small Parliamentary Committee to which the Honorary Secretaries could apply for advice and assistance on urgent matters.

Calor Gas.

It was reported that a large number of enquiries had been received by the Council from gas undertakings contemplating the sale of Calor Gas in areas beyond the reach of their mains. Considerable discussion took place with regard to this matter and the Officers were instructed to ascertain information on certain aspects of the question for the purpose of reporting further at the meeting to be held on Oct. 8.

World Power Conference.

Appointment of Chairman of the International Executive Council.—It was reported that at the meeting of the International Executive Council of the World Power Conference held at the Hague on July 17, Sir Harold Hartley, C.B.E., M.C., F.R.S., was unanimously elected Chairman of the Council in the place of the late Mr. D. N. Dunlop.

A Successful Carnival Entry

Our photograph shows the decorated lorry which was entered by the Chesham and District Gas Company in a recent local football carnival. The display was successful in being awarded second prize.

"The Gas Supply of Glasgow"

No one will doubt the soundness of a policy which will create in the consumers' mind an interest in the undertaking which supplies him with gas. Such a policy is the finishing touch to service, and, in publishing "The Gas Supply of Glasgow," the Corporation Gas Department have succeeded admirably in presenting attractively the story of their Gas Undertaking.

Throughout the publication there runs a suggestion of justifiable pride in the work, carried out year after year by generations of successful administrators, culminating in the great public utility which to-day comprises four separate works with a total output at the end of last year of well over 9,412 million cu.ft., providing regular employment for 2,544 men. Last year the Department paid out £246,308 in rates. "The Gas Supply of Glasgow" deals in detail with each of the Department's four manufacturing stations at Provan, Dawsholm, Tradeston, and Dalmarnock. Many illustrations are given of these stations, including some aerial views, which impress one with the magnitude of the concern, and convey to the mind of the reader a sense of well-ordered efficiency and confidence in the concern. The descriptive matter, while easily assimilated by the layman, is sure to prove of interest to the gas engineer.

Although the book has a universal appeal, it is, as mentioned above, intended primarily to satisfy a local need and the citizens of Glasgow are bound to be greatly interested in the sequence of events recorded in the publication which led to the formation of the Glasgow Gas Light Company in 1817. A second Company—the City and Suburban Gas Company of Glasgow—was incorporated by Act of Parliament in 1843, and, in 1869, both these Companies were transferred to the Glasgow Council with great benefit to the consumer. Since that date the Gas Department has acquired seven other undertakings. The Department pay great attention to the by-products side of their business, and many pages of the publication are devoted

to descriptions of the various plants and processes employed, including liquor concentration, tar dehydration, dephenolation, and tar acid extraction.

Interesting statistics conclude this very readable publication which is printed on art paper and attractively bound in red covers embossed with gold.

Price Down—Sales Up

Revision of Newcastle's Domestic Tariff

Considerable interest was aroused by the publication in the "JOURNAL" for Oct. 3, 1934, of details of the domestic tariff introduced by the Newcastle-upon-Tyne and Gateshead Gas Company. It will be remembered that the Newcastle tariff is a block system, the size of blocks being based on the number of assessable rooms and varying according to the season.

For the sake of clarity we reproduce below the details as published in our columns with the new charges inserted, these being subject to 10% discount for early payment.

Number of Assessable Rooms.	First Block of Therms per Quarter at 7·8d. per Therm (Net 7·02d.).		Next or Second Block of Therms per Quarter at 6d. per Therm (Net 5·4d.).		Therms in Excess* of 1st and 2nd Blocks at—
	Each Quarter Ending March and Dec.	June and Sept.	Each Quarter Ending March and Dec.	June and Sept.	
4 or less	30	20	30	20	3·4d. per therm (net 3·06d.)
5	40	25	40	25	
6	50	30	50	30	
7	60	40	60	40	
8	70	50	70	50	
9	80	60	80	60	
10	90	70	90	70	
11	100	80	100	80	
12	110	90	110	90	
13	120	100	120	100	
14	130	110	130	110	
15 and over	140	120	140	120	

* Excess rate applicable throughout the whole area irrespective of differentials.

Prepayment consumers will participate in the reductions by increased cash rebates. Industrial and commercial users of gas will also benefit by reductions in prices on the two-part tariff.

It is interesting to note that the excess block rate—*i.e.*, 3·06d. per therm, or 1s. 3½d. per 1,000 cu.ft., is less than the prevailing price in pre-war days, and gas is now strictly competitive with solid fuel for space and water heating. The reductions are estimated to benefit the consumer by £27,000 per annum. The Company are selling more and more gas, and, with this further bold step in the right direction, something approaching a record output should be experienced in the present year.

Other tariffs also in force include the following:

TWO-PART TARIFF.

A fixed charge of 10s. net per quarter for each service pipe and the following scale of charges for gas:

Consumption per Quarter and *pro rata* for Other Periods.	*Less* 10% Discount for Early Payment.
For first 2,000 therms	6·0d. per therm = 5·4d. net
For next 80,000 ,,	5·3d. ,, = 4·77d. ,,
For all in excess ,,	3·4d. ,, = 3·06d. ,,

LARGE FURNACE TARIFF.

For contracted minimum quantities of 100,000 therms per annum consumed in special furnaces to be scheduled in the contracts, 2·4d. per therm net subject to rise and fall in price of coal.

OTHER TARIFFS.

Consumptions in excess of 50,000 therms per quarter Consumptions by gas engines with separate meters	At 7·8d. per therm, *less* 20% discount for early payment = 6·24d. net.

The public lamp tariff has also been revised in favour of the lighting authorities. Rates for hire-purchase and sale of gas water heaters have been reduced by one-third of present rates. Reduced terms are also offered for wash boilers for prepayment consumers residing in old property. To cope with this expensive policy, the Company have employed additional salesmen.

The new rates have been launched by means of a publicity scheme on the customary Newcastle scale, and simultaneously with their publication, advertisements and editorial references appeared in seven different newspapers. In one day alone, 55,000 card folders were posted to the consumers. These were backed up by 250 posters, slides at 55 cinemas, window displays, poster stamps on correspondence, and by special letters to excess block users, to be followed up by personal calls by the sales representatives of the Company.

Public Utilities and the Price of Coal

A Central Selling Scheme

At the first monthly luncheon of the Coal Industry Society this Session, which was held at the Hotel Metropole, London, on Monday, Sept. 16, Mr. R. A. Burrows gave an outline of the Lancashire Central Selling Scheme which is being worked by an organization to which the name of Lancashire Associated Collieries has been given.

He emphasized that the object of the scheme, which had been sanctioned by Parliament, was to improve the position of the coal miner and the Industry as a whole, and pointed to many economies that it was hoped to make under the scheme which would have the result of giving a better return on coal. Dealing with the position as regards consumers, he first referred to the foreign trade and suggested that this could be so organized that profits could be enhanced. As to the industrial user, he expressed the view that in many cases the user could afford to pay a higher price than he did to-day. Many users were not faced with foreign competition and the cost of coal was a very small proportion of their total costs, and on the whole he felt it would be reasonable and fair to ask for a slightly increased price in order to assist the coal industry to be placed upon a satisfactory footing. At the same time he did not suggest that the coal industry should merely ask for better prices; it should study the needs of the consumer to a greater extent than had been the case in the past, and generally re-organize the markets to be served in the industrial field.

Referring to public utilities, Mr. Burrows, who is Deputy Chairman of Lancashire Associated Collieries, said they had what was practically a monopoly except for the competition between gas and electricity, which probably was very severe, but they could not expect to take away from the coal industry the house coal market and supply gas and electricity in its place, and then to buy coal at less than the cost of production. He did not say this in any antagonistic way because he had some very good friends and also customers among the gas and electricity authorities. At the same time he felt that these industries talked rather loudly about monopoly in the coal trade without regarding the conditions in which they found themselves.

He believed there was such a thing as a gas-coke ring around London which seemed to him to be somewhat monopolistic. He also believed that the manufacture of gas fires, electric fires, and other apparatus was in the nature of a ring, and therefore the coal industry was not introducing anything very novel in their central selling scheme. The only real opposition in Parliament had been from the public utilities, but he was inclined to feel that this was all due to a misunderstanding. Indeed, he would like to say to these industries that he was sure when they realized the facts of the coal industry they would wish to help rather than hinder.

National Window-Dressing Contest and the Gas Industry

The *Daily Express*, in connection with its "Help Your Neighbour" campaign, is offering substantial prizes in a national window-dressing competition.

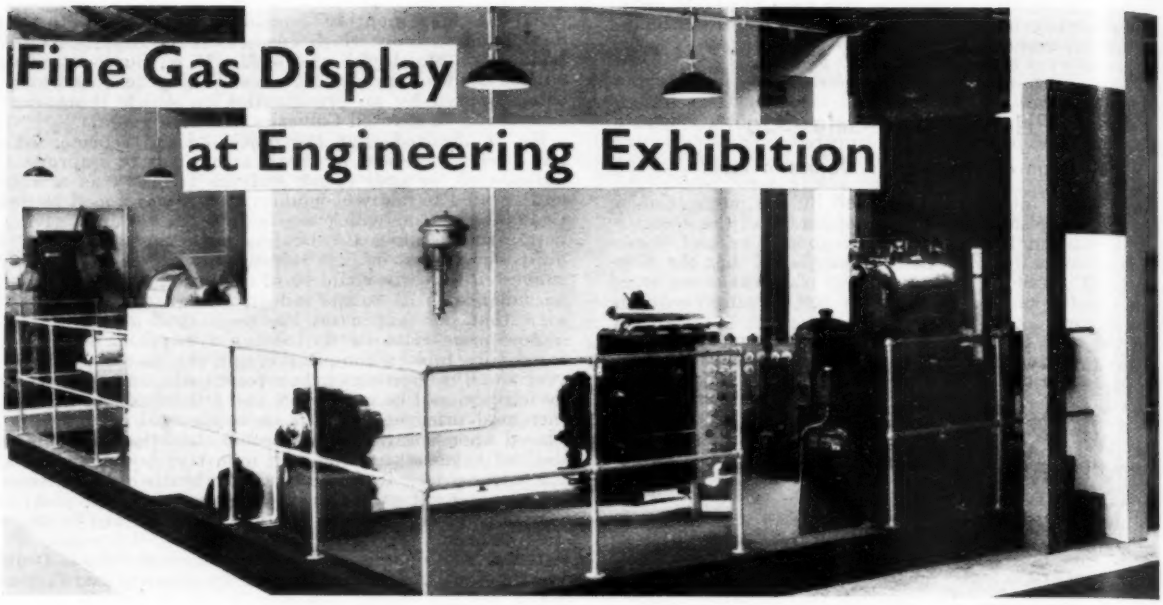
The British Commercial Gas Association is participating by offering additional prizes for the best gas displays. The first prize is £25 in cash and the B.C.G.A. solid silver challenge cup, to be held for one year; 2nd prize, £15 cash; 3rd prize, £10 cash; with ten consolation prizes of £5 each. Photographs should be endorsed on the back with the word "Gas" and sent to the *Daily Express* in accordance with the rules of the competition. Entries will then be judged both for the prizes offered by that newspaper and by the B.C.G.A.

The Institute of Vitreous Enamellers

The Second Annual Conference of the Institute will be held in London from Sept. 27 to 29, 1935. A Banquet and Dance to be held in the Edward VII. Rooms, Hotel Victoria, Northumberland Avenue, W.C. 2, will inaugurate the proceedings.

The following day will be taken up with visits to Messrs. Belling & Co., Ltd., Enfield, and to the Shipping, Engineering and Machinery Exhibition. The Technical Meeting will be held in the Olympia Boardroom at which Mr. C. P. Stone will deliver a Paper on "Common Defects in Vitreous Enamelling on Cast Iron, Sheet Iron, and C.R.C.A. steel. Tea will be provided by courtesy of the Exhibition organizers. A private car rally on the Sunday promises to be a very enjoyable function with a picnic luncheon on Leith Hill, Surrey, and tea at Westerham, Kent.

Fine Gas Display at Engineering Exhibition



Gas plays a prominent part at the thirteenth of the series of Shipping, Engineering, and Machinery Exhibitions, which opened at Olympia last Thursday. A splendid co-operative display arranged by the British Gas Federation occupies little short of 7,000 sq.ft., and is well worthy of the great Industry it represents, comprising as it does industrial plant manufactured by many well-known firms.

The exhibit is designed to show a selection of the types of gas-fired equipment now used to solve industrial problems, and to demonstrate some of the processes to which gas is being increasingly applied. In most of the exhibits actual work is in progress, and visitors may arrange to have their own specimens treated.

In the heat treatment shop four types of oven furnace, two high speed steel tool furnaces, a rotary carburizing furnace, a rotating hearth furnace, a belt conveyor furnace, and two salt bath furnaces are shown. A wide variety of heat treatment work will be carried out, and particular interest attaches to the new Sheffield controlled atmosphere furnace, which hardens high speed steel without scaling or decarburizing, and gives a uniformly fine grain structure throughout the steel. Specimens of steels case hardened in various types of salts will be on view.

Metal Melting.

Five types of non-ferrous metal melting furnaces are at work and there is an exhibit of hot brass pressing. A rivet heater and a forge furnace are also shown. Metal spraying and oxy-coal-gas cutting are demonstrated, the latter by means of an automatic profiling machine working from a simple template.

A plastic moulding press produces "Mr. Therm" ash trays, and a trichlorethylene degreaser is exhibited. Two types of core drying, tempering and enamelling stoves, a model of a large conveyor enamelling oven, and three types of air heater demonstrate some of the other low-temperature applications of gas. Four automatic steam boilers, three central heating boilers, and a conversion set make up another section, while gas engines are represented by a completely automatic generating plant consisting of two small four-cylinder engines with automatic paralleling, another small generator set with a single cylinder vertical engine, and a small single horizontal engine suitable for driving shafting in garages and small workshops of all kinds. An automatic still for producing distilled water for accumulators or laboratory work is on view.

The side of the stand overlooking the gallery consists of an information bureau and a counter on which a wide range of small furnaces, burner equipment, blowpipes, glass blowing burners, and laboratory equipment is arranged so that individual items can be connected up for demonstration purposes.

The numerous pyrometers and automatic control gear fitted to the various exhibits bear testimony to the accuracy and refinement of which modern gas equipment is capable.

Gas Section Exhibitors.

Products of the following firms are included in the B.G.F. display:

Amal, Ltd.
Sir W. G. Armstrong Whitworth & Co. (Engineers), Ltd.
Thomas Ashworth & Co., Ltd.
Autocontrol Boilers, Ltd.
F. J. Ballard & Co., Ltd.
Bilbie Hobson & Co.
Brayshaw Furnaces and Tools, Ltd.
British Furnaces, Ltd.
British Oxygen Company, Ltd.
Cambridge Instrument Company, Ltd.
Carrier Engineering Company, Ltd.
Chance Bros. & Co , Ltd.
Cochran & Co. (Annan), Ltd.
Constructional Engineering Company, Ltd.
Electroflo Meters Company, Ltd.
Elliott Bros. (London), Ltd.
Ether, Ltd.
Geo. Finney & Co., Ltd.
Fletcher Russell & Co., Ltd.
Foster Instrument Company.
J. B. Gapp & Co.
Gibbons Bros. (Dudley), Ltd.
Grimoldby, Ltd.
Hancock & Co. (Engineers), Ltd.
Horstmann Gear Company, Ltd.
Ideal Boilers and Radiators, Ltd.
Imperial Chemical Industries, Ltd.
Incandescent Heat Company, Ltd.
Keith & Blackman Company, Ltd.
Kohler & Co., Ltd.
National Gas and Oil Engine Company, Ltd.
Negretti & Zambra
Thomas Potterton (Heating Engineers), Ltd.
H. Pratt, Ltd.
Radiant Heating, Ltd.
Selas Gas and Engineering Company, Ltd.
Serck Radiator Company.
Thompson and Capper Wholesale, Ltd.
Town Gas Boilers (Bonecourt), Ltd.
Edgar Vaughan & Co., Ltd.
A. H. Wilkes & Co., Ltd.

In addition, the Gas Light and Coke Company, the South Metropolitan Gas Company, and the Sheffield Gas Company are co-operating in the display.

And the "JOURNAL."

The "GAS JOURNAL" has for 86 years been an integral part of the Gas Industry, and whenever possible is identified with the enterprise of that great public utility. It is therefore fitting that alongside the Industry's imposing display is the small stand of Walter King, Ltd. Designed to harmonize with its big neighbour, and yet to attract the attention of the many visitors to the Industrial Gas Exhibit, the stand, with its display of technical periodicals and gas literature, demonstrates the progress and the ever-increasing activities of a Publishing House whose sole policy since 1849 has been service to the Gas Industry.

Exhibits of interest to the Gas Industry could hardly be entirely confined within the practical limits of even so large a stand as that of the B.G.F., and we give below some further notes concerning plant exhibited by various concerns who have a "stake" in the Industry in one connection or another.

On the stand of Babcock & Wilcox, Ltd., is a full size section of a B. & W. standard marine water tube boiler, fired with Babcock-Erith-Roe marine type stoker, in a furnace of Bailey construction. Other accessories on this exhibit consist of Babcock calorized diamond soot blowers and a Babcock-Clyde soot blower.

Babcock fusion-welding is a process of particular interest at the present time, as the name of the Company has recently been placed on Lloyd's Register List as a firm

approved by them for the construction of fusion-welded pressure vessels for land purposes to their class 1 specification.

A full range of Babcock valves are shown, including the "Handor" parallel slide valve, with which design of valve the internal parts can be examined or completely withdrawn from a handhole fitting in the valve body, without breaking any joints in the steam line or lifting heavy valve covers.

Models of the Babcock level luffing jib crane and various boilers are also shown, including the B. & W. "SX" type light-weight marine boiler and a Clarkson thimble tube boiler.

The firm are making their usual feature of comfortable lounge accommodation for the use of visitors, and their reception room is a replica of a ship's cabin.

On the British Oxygen Company's Stand is equipment for oxygen cutting, oxy-acetylene welding (including bronze-welding), lead burning, metal spraying, electric arc-welding, and dissolved acetylene lighting. The exhibits comprise a representative selection of these manufactures together with a range of "Alda" welding rods and fluxes and specimens of work done with the aid of B.O.C. machines and equipment. Demonstrations of the various processes for which B.O.C. products are used constitute another feature.

Bell's Asbestos and Engineering Supplies, Ltd., are showing a wide range of their products, including their well-known engine room specialities and other products for use in connection with fire protection and prevention. Their "Bestobell" fireproof drop curtains and ceiling materials enable a fire to be localized with certainty. Coloured asbestos goods are also displayed.

A selection of general refractory ware, small and large tubes, fire bars, furnace insulators, &c., are included among the exhibits of Geo. Bray & Co., Ltd.

Industrial Research.

The Department of Scientific and Industrial Research have an industrial research exhibit illustrating some of the more recent developments, and their applications to industry, of research work carried out in the Department's laboratories, such as the National Physical Laboratory, the Fuel Research Station, and laboratories of the co-operative industrial research associations serving the metal industries formed under the auspices of the Department.

The Four Oaks Spraying Machine Company show a collection of their Four Oaks Gold Medal spraying, limewashing, disinfecting, and painting machines, pumps, nozzles, &c., for all purposes. These machines are in actual operation.

Hancock & Co. (Engineers), Ltd., exhibit a range of oxygen jet cutting machines in which they have specialized for many years. In particular, they are showing one of their new Simplex universal profiling machines, a portable auto-cutting machine, one of their well-known "U" arm type profiling machines with all latest improvements, a "Circaline" straight and circle cutting machine and hand cutting and welding outfits. The "Simplex" universal profiling machine will not only profile any shape required by means of one or other of the three drives provided, but in addition will cut straight lines and circles entirely automatically. The portable auto-cutting machine has been designed mainly for shipyard work and for cutting up very large plates to required sizes. The "Circaline" machine is a portable straight line and circle cutter and will cut circles from as small as 4½ in. radius upwards without limit, and straight lines automatically, also gentle profiles by guiding along a line marked out on the plate.

Hilmor, Ltd., are showing a variety of machines to undertake the bending of every class of tube. The usual standard models are displayed together with some special machines. The whole display deals with the bending of tubes on large and small radii and will include a quantity of sample bends. A special feature of this exhibit will be the first public view of their latest product known as the G.L.1 tube-bending outfit, which should prove most interesting to gasfitters and plumbers.

The Crossley Bros., Ltd., exhibit this year is very comprehensive as with the exception of the large Crossley-Premier *vis-à-vis* type, the application of which to refrigeration work and Diesel electric propulsion is well-known, there is a full range of types and sizes running from 6 B.H.P. to 400 B.H.P.

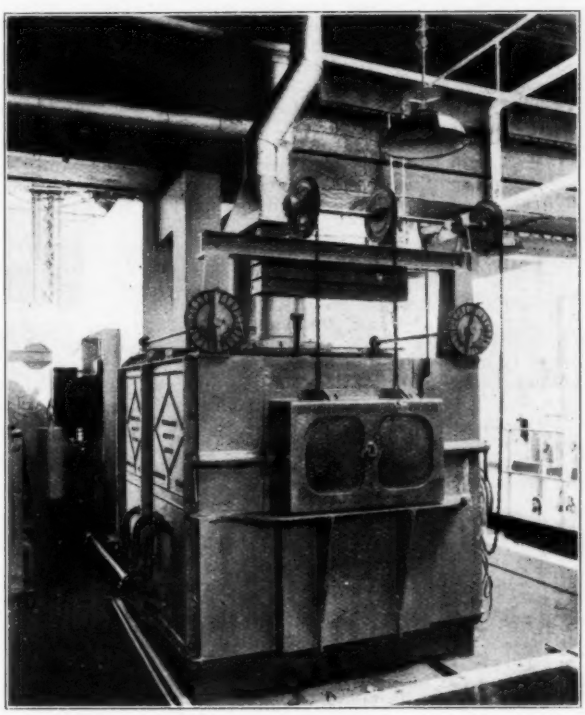
There are four examples of a new type small high speed Diesel arranged for propulsion and as auxiliary, pumping, and electric combinations; also two scavenge-pump type direct reversing marine Diesels—one a four-cylinder type and the other a six, while the largest engine is an eight-cylinder four-stroke Diesel for auxiliary duty. Of greatest interest is probably the six-cylinder Scavenge-Pump Diesel which develops 330 B.H.P. when running at 300 r.p.m. Of the small high speed Diesels there are various examples provided, ranging in speed from 1,500 to 800 r.p.m.

The whole exhibit is representative of Diesel engine construction for marine small and medium craft, and for auxiliary purposes. It is interesting to note that all these Crossley engines are shown in operation, and the ease of starting and reversing with the scavenge pump marine Diesels will be demonstrated.

Hopkinsons, Ltd., are exhibiting a comprehensive selection of boiler mountings and valves for all pressures and temperatures. This includes a group of parallel slide valves exemplifying a wide range of pressures; Hopkinson Ferranti stop valves, "Uniflow" slide valves and other slide valve units, together with a representative display of small bronze valves of varying types. Relief valves and safety valves, including Hopkinsons' "Hylif" safety valve, are shown, while typical examples of check feed valves, isolating valves, blow-off valves, non-return valves, pressure-reducing valves, temperature-reducing valves, pressure and vacuum gauges, draught gauges, and water gauges are on view. A de-superheater arrangement, the automatic control of which is effected by Hopkinson Carlstedt regulators, is a prominent feature of the exhibit.

Cast-Iron Refining.

Imperial Chemical Industries, Ltd., exhibit granular sodium carbonate and fused sodium carbonate blocks for the refining of cast iron and non-ferrous metals. Sodium carbonate has a number of beneficial effects on cast iron, among them being de-gasification of the metal, refining of the graphite, removal of non-metallic inclusions, and reduction in sulphur content. The last of these is of particular value in connection with steelmaking, and sodium carbonate finds application in connection with the basic open hearth, acid and basic Bessemer, and Tropenas processes. In the case of iron castings, the use of this chemical results in the production of sounder castings, free from porosity, and having better machining properties.



One of the Furnaces in the heat treatment section.

Murex Welding Processes, Ltd., are showing a number of novel exhibits on their stand, which is surrounded by welded steel frames illustrative of the trend of steelwork design for modern industrial buildings. The frame is such as would be used for supporting a railway station roof and consists of a central span of 30 ft. and two side cantilevers of 10 ft. each.

A 12-ton railway wagon incorporates a standard 17 ft. 6 in. steel underframe for such goods wagons. Welded joints are utilized in lieu of riveted lug and gusset attachments. The frame was prepared and welded at the Dukinfield Works of the L.N.E.R. and is representative of hun-

dreds they have constructed in their works. The saving in weight as against a riveted frame is 17%. This frame was welded with Murex Cresta electrodes utilizing Murex motor generators.

In addition to the large range of electrodes for the welding of both ferrous and non-ferrous metals, which are shown, together with numerous samples of welds, there is displayed a large selection of Murex arc welding plant and equipment.

George Kent, Ltd., show a comprehensive range of metering and control apparatus, foremost among which is the KM type flow recording meter. This type of meter operates in conjunction with either an orifice plate inserted in the main or a Venturi tube and is suitable for water, steam, or any other fluid whatever the quantity or pressure. Another application of the Venturi meter which is shown on the stand is that for open channel measurement by means of Venturi flumes. Other meters shown include the ring balanced flow recorder for low-pressure air or gas measurement; this meter finds applications in the iron and steel industry, in gas-works, and also in sewage works. Other types of steam and gas meters are on view, while the firm's well-known systems of automatic boiler control are represented by a typical exhibit.

Compressors and Exhausters.

Reavell & Co., Ltd., are showing a representative selection of the compressors and exhausters which they manufacture for dealing with air or gases. There are four double acting two-stage compressors of 400, 500, 750, and 1,000 cu.ft. per minute capacity respectively, all suitable for working pressures up to 120 lb. per sq.in., a full range of sizes of single acting vertical single-stage compressors consisting of ten sizes of machines varying in capacity from 2 cu.ft. per minute and having one, two, or three cylinders according to the capacity. There is also a selection of rotary compressors of various types which are made for capacities up to 3,000 cu.ft. per minute, and machines up to 500 cu.ft. per minute capacity will be shown. The Reavell-Askania regulator, manufactured by the Company, is also exhibited.

Siebe, Gorman, & Co., Ltd., exhibit diving apparatus; breathing and safety appliances, including "Proto" and "Salvus" self-contained oxygen breathing apparatus, "Spirelmo" smoke helmets of various patterns, "Novox" (oxygen and CO_2) and "Novita" (oxygen) resuscitating apparatus, "Puretha" gas masks of all patterns, and other types of dust and spray masks, sand and shot-blast helmets and clothing, welders' helmets and shields, asbestos, and other protective clothing, together with safety goggles for all purposes, safety belts, fire extinguishers, and other protective devices.

Stewarts & Lloyds, Ltd., exhibit a comprehensive range of samples of pig-iron, manufactured at their various works, and also samples of pig-iron manufactured by the Ford Motor Company, Ltd., for whom they are sole sales agents. A selection of castings are shown demonstrating typical uses for the various grades of iron.

Thomas & Bishop, Ltd., are showing examples of their "Flexo" belt dressing, of which they are giving demonstrations both on their stand inside and demonstration van outside. "Flexo" tinning compound is also exhibited, together with "Flexo B" furnace cement, "Permac" metal-to-metal jointing material and "Kester" solder.

John Thompson (Wolverhampton), Ltd., exhibit examples of fusion welded water tube boiler drums, pressure vessels, and water softening plant.

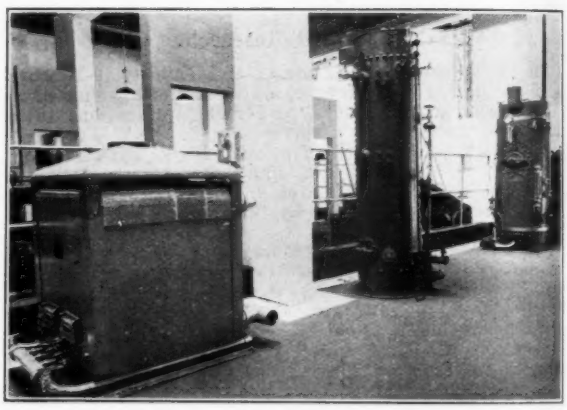
Trier Bros., Ltd., are showing examples of their chemical compound for cleaning greasy floors, utensils, &c., and a new system of introducing graphite pastes for lubrication of steam engines, pumps, circulating systems, &c., by means of high-pressure guns and mechanical lubricators. They are also showing "Trier's split-grip collars" for all types of shafts.

The Turbine Furnace Company, Ltd., have on their stand a full-sized Lancashire boiler front showing "Turbine" patent furnace fitted in the furnace flues. One flue is arranged for fan-forced draught and machine firing, the other fitted for hand firing with steam jet forced draught. The extension grate, which facilitates "clinkering" and prevents black smoke, is also shown. This modification is particularly useful when fuels with high ash content, such as washery settlings, belt pickings, breeze, &c., are used, as the grate can be cleaned quickly. A recent development by the Company is "Turven" firebars and equipment, designed for small steam or heating boilers, and consists of special bars with Venturi air spaces, forced draught fan, and motor with automatic control.

G. & J. Weir, Ltd., are exhibiting a representative range of marine and stationary power plant auxiliaries, including modern types of boiler feed pumps, comprising a pair of Weir vertical Simplex direct-acting pumps, primary and secondary feed water heaters, "Multiflow" surface type, and direct contact de-aerating type, feed water de-aerator for eliminating dissolved gases in feed water and rendering it non-corrosive, complete with air ejector and condensate extraction pump. They are also showing their Hydrokineter triple-nozzle injector type boiler circulator for increasing circulation in boilers when starting up.

The Opening Luncheon.

At the opening of the Shipping, Engineering, and Machinery Exhibition on Sept. 12 by Lord Sempill, the Gas Industry was represented by Sir Francis Goodenough, C.B.E., who, at the subsequent luncheon, proposed the Toast of "Success to the Exhibition." In the course of his speech, Sir Francis said he accepted the invitation to propose that toast, first because he had been associated with his friend, Mr. F. W. Bridges, in connection with exhibitions ever since the National Gas Exhibition at Earls Court in 1904 and regarded him as a national asset in his ability to organize successful national exhibitions; secondly because, as a son of "Red Devon by the Sea" he was always keenly interested in anything connected with shipping; and finally he was confirmed in his acceptance by having that morning inspected the Exhibition itself which was certainly bigger and better than ever. Furthermore, he was especially interested in this year's Exhibition because for the first time it included a co-operative industrial gas exhibit organized by and for the British Gas Federation. It would well repay inspection, and very clearly demonstrated that, so far from the Gas Industry being, as some thought, more particularly those who wished that it was, moribund, it was to-day more than ever "alive and kicking." He very cordially wished



Steam Raising and Central Heating Boilers.

the Exhibition the success it deserved and which he felt sure it would achieve. Among others present, connected with the Industry, were Sir Charles L. Morgan (Director of the Brighton, Hove, and Worthing Gas Company), Mr. M. W. Burt (Manager and Secretary of the Society of British Gas Industries), Dr. R. Lessing, and Mr. W. H. Becket (who is in charge of the gas exhibit).

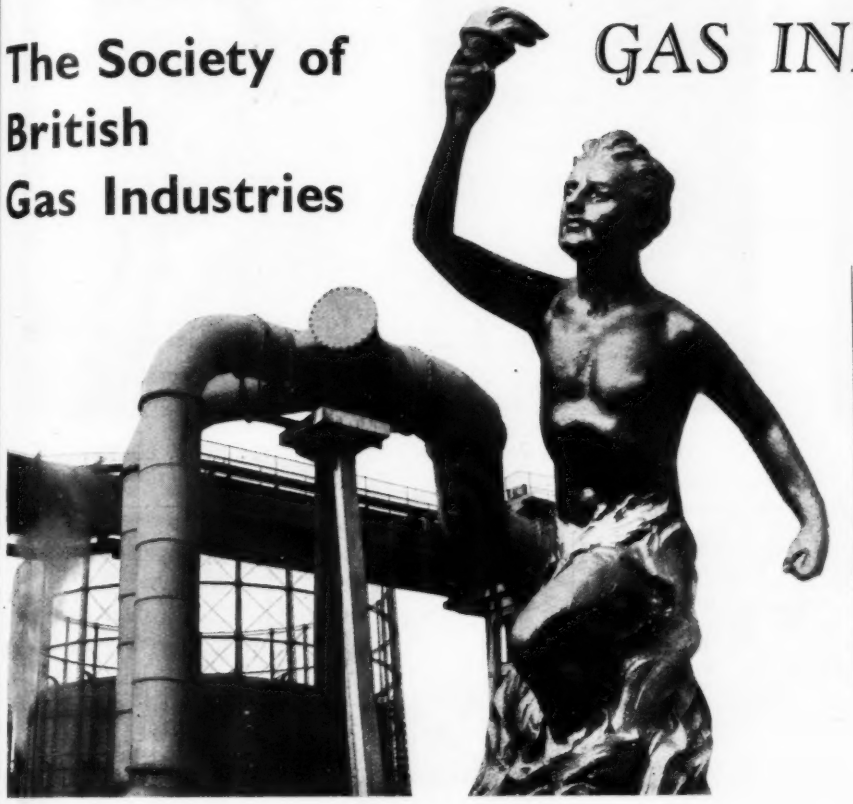
Official Visits

Among a large number of Official Visits which have been arranged during the period of the Exhibition the following may be noted:

Sept. 18.—British Cast-Iron Research Association.
,, 19.—Institution of Chemical Engineers.
,, 19.—Society of British Gas Industries.
,, 20.—British Chemical Plant Manufacturers' Association.
,, 20.—Institution of Mechanical Engineers.
,, 21.—Institution of Engineers-in-Charge.
,, 24.—Association of Public Lighting Engineers.
,, 24.—Illuminating Engineering Society.
,, 24.—Institution of Heating and Ventilating Engineers.
,, 24.—London and Southern District Junior Gas Association.
,, 25.—Institute of Fuel.
,, 27.—British Waterworks Association.
,, 27.—Institution of Civil Engineers.
,, 27.—Iron and Steel Institute.
,, 28.—Institute of Vitreous Enamellers.

LONG SERVICE TO THE GAS INDUSTRY

The Society of British Gas Industries



A number of firms of long standing on the contracting and manufacturing side of the Industry have collaborated with the "JOURNAL" in the production of a series of articles, under the above title, which will appear in forthcoming issues. As an introduction, the Manager and Secretary of the Society of British Gas Industries, Mr. M. W. Burt, describes something of the working of their National Body, and points to the useful ends which such a series may be made to serve at the present juncture.

Founded in 1905, the Society of British Gas Industries by virtue of its years qualifies for inclusion in the series "Long Service to the Gas Industry," though among its members are many firms which can look back on many more years of service in the Industry.

From modest beginnings the Society has grown steadily, and concurrently its influence and prestige in the Gas Industry have materially increased, under the guidance of Chairmen prominent in the Industry, who have placed their time and their experience freely at the Society's disposal.

The Society, moreover, has been honoured by a succession of distinguished Presidents, many of them from other walks of life, who have gladly lent their names and their influence to further the objects of the very important section of a national industry which the Society represents. The list, as follows, contains many eminent names:

1906-7	Sir Dugald Clerk, K.B.E., F.R.S., D.Sc., LL.D.
1908	Sir George Livesey, M.Inst.C.E.
1909-10	Thomas Newbigging, D.Sc., M.Inst.C.E.
1910-11	J. H. Balfour Browne, K.C., D.L.
1911-12	Professor Arthur Smithells, C.M.G., D.Sc., F.R.S.
1912-13	Sir Corbet Woodall, J.P., D.Sc., M.Inst.C.E.
1913-14	Professor Harold B. Dixon, C.B.E., Ph.D., F.R.S.
1914-16	Lieut.-General Sir Alfred Keogh, G.C.B., C.H.
1916-17	The Right Hon. Lord Merrivale.
1917-18	Sir Robert A. Hadfield, Bart., D.Sc., F.R.S.
1918-19	The Right Hon. Lord Moulton, G.B.E., K.C.B., F.R.S.
1919-21	Sir Arthur Duckham, G.B.E., K.C.B., M.Inst.C.E., M.Inst.Gas E.
1921-23	The Right Hon. Lord Riddell.
1923-24	The Right Hon. Lord Weir of Eastwood, G.C.B.
1924-25	Sir David Milne-Watson, LL.D., D.L.
1925-26	The Right Hon. Lord Melchett, D.Sc., F.R.S.
1926-27	The Right Hon. The Earl of Dudley, M.C.
1927-28	His Grace The Duke of Sutherland, K.T.
1928-29	The Most Hon. The Marquess of Hartington, M.P.
1929-30	The Right Hon. Viscount Cecil of Chelwood.
1930-32	The Right Hon. Lord Eustace Percy, M.P.
1932-33	The Right Hon. L. S. Amery, M.P.
1933-34	The Right Hon. Earl Fitzwilliam, K.C.V.O.
1934-35	Sir John Cadman, G.C.M.G., D.Sc.

Confidence.

In the forefront of the Rules of the Society it is stated that one of the objects for which the Society was formed was to promote reciprocal good feeling and mutual confidence between its members and the Gas Companies and Undertakings. Confidence must, however, be based on understanding, and this series will afford many firms an opportunity of showing what they have done through their history to develop the great industry of which they form part. An appreciative understanding of the services they have rendered will give the Industry confidence in those firms which have served them well in the past, and will be an urge to the Industry to support them in the future.

The reputation possessed by members of the Society has not been easily won. There is the keenest competition among them to excel in the quality of their products, and to render these products as attractive as possible both to the Industry, and also where applicable to the General Public. This entails, inevitably, a large internal expenditure on research and development work; it involves the selection and training of a very highly skilled personnel; it demands a creative technique in manufacturing methods and design. It is hoped that this series of articles will illustrate in these, as well as in other directions, the value of the services rendered by the contractors and manufacturers.

Firms which have survived and prospered for a period of 25 years or more in a highly competitive business have behind them a record of which they may be justly proud. They will have justified to themselves their confidence in themselves, and deservedly they will have earned the confidence of their customers.

An Important Factor.

Price in any competitive business is a most important factor, but only in relation to quality. If prices are cut to the bone, naturally the quality of the goods supplied must suffer in consequence. Fortunately, though, long experience has taught this lesson, and not only the good sense of the purchaser, but also the very proper desire of the manufacturer to maintain his good name and reputation should be an adequate safeguard for the future.

The contractors and manufacturers owe much to the men of vision who saw the advantage it would be for firms whose

The President.

Sir JOHN CADMAN.

The Chairman.

Mr. D. M. HENSHAW.

The Manager and Secretary.

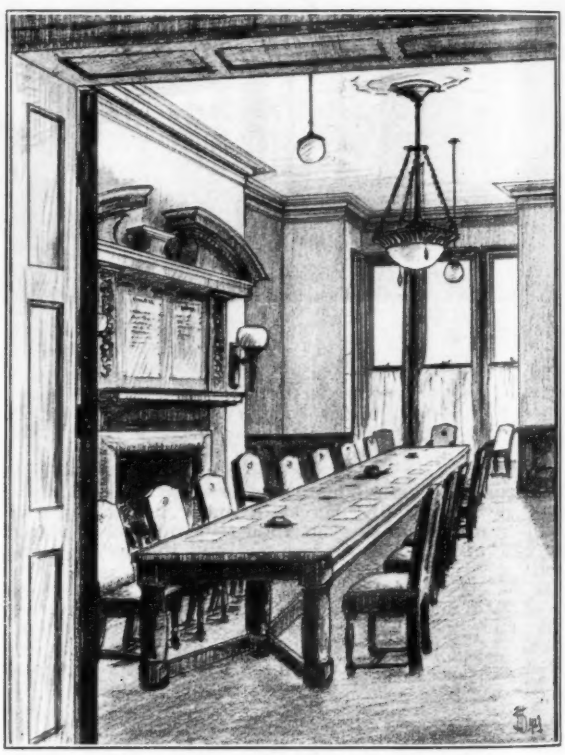
Mr. M. W. BURT.

main business it was to supply plant and appliances for the manufacture, distribution, and utilization of gas to form themselves into a body, through which they could cultivate a knowledge of one another's views upon matters of common interest and speak with a united voice. There is every prospect now of this spirit of co-operation which has been cultivated within the Society for the last 30 years being put to a wider use. With the formation of the British Gas Federation, the contractors and manufacturers through the Society have a unique opportunity of joining with their customers in a great combined effort to further the interests of the Industry on which all depend for their livelihood.

This new position is both an inducement to members of the Society to do everything possible to strengthen their central organization, and it should also be the greatest possible inducement to firms outside to become members of the Society, and so enable it to speak with the full force of a united and wholly representative body in the common councils of the Industry. The Society in any case already represents an overwhelming proportion of the stable and well-established firms on this side of the Industry, as will be clearly evidenced by a very high percentage of the firms, which satisfy the editorial qualification for inclusion in the series "Long Service in the Gas Industry" being members of the Society.

The Society is more than anxious to take its full share in the progressive development of the Industry. Its members would welcome opportunities for closer co-operation through the British Gas Federation, and they believe that the experience and services of their personnel could be drawn upon to advantage for the study of many of the Industry's most intimate problems.

Years of experience in every phase of manufacturing and contracting activity gained under every variety of circumstances and conditions, not only in this country, but in many other countries as well, is an asset of the greatest possible value to an industry. It is at the disposal of the Gas Industry through the Society.



An impression of the Board Room at the Society's Headquarters.

Progress in Australia

As evidence of the continued improvement taking place in conditions in Australia, Messrs. William Coward & Co., Ltd., 3, St. James's Square, S.W. 1, draw our attention to the increases which have taken place in the output of gas in the area served by the North Shore Gas Company, Ltd., of Sydney.

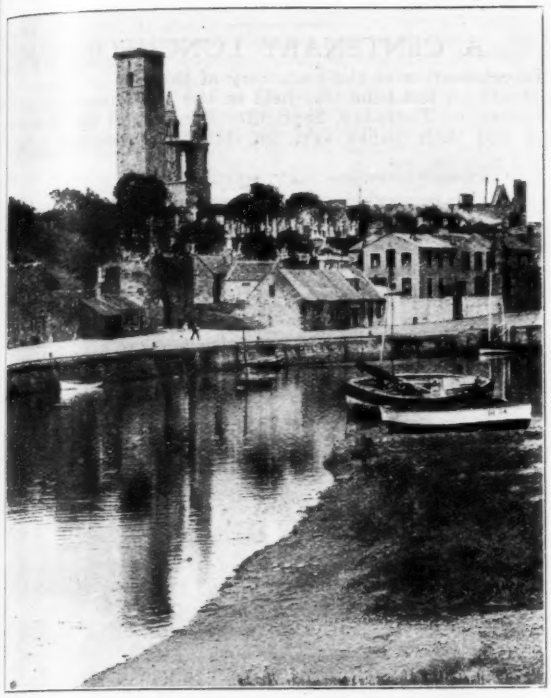
The increases mounted to 4·88% in May of this year, 5·75% in June, and 9·10% in July. Similar improvement is evidenced in the remarkable increase in the sales of appliances which, in the period mentioned, have advanced by, roughly, 130%.

There has been a general step forward in building operations, and the North Shore Company has been carrying through intensive sales efforts, the results of which are quite apparent in the excellent figures now available.

Eleven Years of Staff Training

Miss Gladys Burlton's services are described in a booklet which marks the eleventh year since she started her staff training service and employment agency. At the inauguration of the Burlton Institute, 30, Manchester Street, London, W. 1, there was, as far as the founder knew, only one store in England with a scheme of staff training. Since then the idea has steadily gained ground, and for this fact the many "JOURNAL" readers who still have in mind her forceful addresses will agree that Miss Gladys Burlton is deserving of a large measure of credit.

There are booklets to ensure that assistants shall master their merchandize, and tonic bulletins suggesting to the staff fresh ways of increasing sales. These are only part of a service which show selling to be an art, and Miss Burlton to be an artist.



[*Photo. Glasgow Herald.*

A View of St. Andrews.

North British Association of Gas Managers

Seventy-Fourth Annual Meeting

The Seventy-Fourth Annual General Meeting of the North British Association of Gas Managers was held in the United College Hall, the University, St. Andrews, on Thursday, Sept. 12.

The PRESIDENT, Mr. G. Bruce (St. Andrews), occupied the chair, and a welcome to members was extended by Bailie CROSBY JOHNSON, who said that he first of all wished to apologize for the absence of Provost Boase who had a long standing engagement in the North. It was his honour and pleasure to welcome the Association to St. Andrews on behalf of the Town Council and citizens. St. Andrews people felt that it was only possible to touch the fringe of the town's tradition and beauty in a week's visit, and he hoped that many of the members would return for a more prolonged stay.

Mr. J. CARGILL CANTLEY (Chairman of the St. Andrews Gas Company and Town Clerk of St. Andrews) said that as Chairman of the St. Andrews Gas Company he wished to associate himself with the welcome which had been extended by Bailie Crosby Johnson. He hoped that their deliberations would be successful and that they would return to St. Andrews.

The PRESIDENT thanked Bailie Crosby Johnson and Mr. Cantley for their words of welcome and said that at these meetings there was always a holiday spirit abroad and gas managers were given an opportunity of talking among themselves.

The minutes of the last meeting were taken as read.

The PRESIDENT said that since they last met they had lost by death members who, by their kindly manner, had esteemed themselves to all. The meeting then observed a minute's silence in memory of Mr. J. F. Black (Newport, Fife) and Mr. J. McDonald (Denny).

The SECRETARY (Mr. A. Kellock, Airdrie) announced that apologies had been received from the Junior Vice-President (Mr. J. Jamieson, Edinburgh), Mr. J. R. W. Alexander (the Secretary of The Institution of Gas Engineers), Sir Francis Goodenough, and from Presidents and Secretaries of kindred Associations and members of the North British Association.

The PRESIDENT said that it gave him great pleasure to welcome Colonel Carr (President of The Institution of Gas Engineers). Colonel Carr was a busy man, and they were very much indebted to him for being there that day. They were also very pleased to have with them Mr. De Bard from New York.

Colonel W. M. CARR, O.B.E., T.D., thanked the President for his welcome and said that this was his first visit to the North British Association. As President of the parent Institution it was his privilege to visit the district associations and he had experienced no greater pleasure than in visiting the North British Association. He was interested to see that the addresses were directed to what in his opinion was the Industry's most important work—improvement in utilization and selling. In spite of the wonderful work done by people like Prof. Bone, there was still an enormous amount to do if the Industry was to live up to its great purpose of providing clean and economical heat. He felt that most of the research work should be directed to the important question of improvement in utilization and should be backed up by improvements in selling methods.

New Members.

The Annual Report was approved and it was announced that the following new members had been elected:

J. H. B. Jarvie (Carluke), William McCall (Lochgilphead), J. McLuskie (Stornoway).

The PRESIDENT then presented certificates to the following successful candidates:

1st Class Higher Grade Certificate in Gas Engineering and 2nd Class in Gas Supply:

J. H. Fulton (Glasgow).

2nd Class in Gas Engineering:

H. H. Brown (Rosyth), J. R. Denoon (Leith).

1st Class in Gas Supply:

D. L. Dickson (Cowdenbeath), H. S. Milne (Greenock), E. G. Smith (Dumbarton).

2nd Class in Gas Supply:

W. Gilchrist (Kilmarnock), A. C. Rea (Edinburgh), T. R. Sawers (Denny), H. G. Keillor (Greenock).

William Young Memorial Lecture.

The PRESIDENT said that they had now come to the principal part of the proceedings. Prof. Bone, who would deliver the William Young Memorial Lecture, required no introduction, he was known all the world over. Prof. Bone then delivered his lecture, which he entitled "Half a Century of Combustion Research." [We shall return to Prof. Bone's lecture later in the "JOURNAL."]

The SENIOR VICE-PRESIDENT (Mr. J. Dickson, Kirkintilloch), in proposing a vote of thanks to Prof. Bone said that he was unable to express adequately his appreciation and thanks. Though they may not have understood all the lecture, he was sure that they would have received an urge from it which would have made it worth while coming to St. Andrews. It would be folly for a layman to express an opinion, but he could express his great debt of gratitude to Prof. Bone for going there.

Mr. A. S. NISBET (Paisley), in absence of the Junior Vice-President, seconded the vote of thanks.

Prof. BONE, in reply, said that he wished to thank the members not only for the vote of thanks but for the attentive hearing they had given him. He had laid before them an outline of the purely scientific study of combustion during the last fifty years. It might appear to have little practical application, but he could assure them that scientific discoveries to-day were the basis of the practical advances to-morrow. Scientists who devoted their life to

research did not as a rule make the practical applications of the work; and that should be the business of the Associations like The Institution of Gas Engineers. They should take up the matter where the scientist left it and carry it forward to its full practical fruition. The Industry owed a great deal to science, and Prof. Bone pointed out that some of the greatest advances of the Industry were due to the bunsen burner which was devised by Bunsen for use in his own laboratory without thought of commercial application.

Afternoon Session.

After luncheon, a Paper was presented by Mr. Thomas Carmichael, of Portsmouth, on "Promotion of Gas Sales." This, together with the report of the discussion which followed, will be found on other pages of this issue.

Continuing the business meeting, the result of the election was announced, and the following are the Office-Bearers for 1935-1936:

President.—J. Dickson (Kirkintilloch).

Senior Vice-President.—J. Jamieson (Edinburgh).

Junior Vice-President.—George Braidwood (Coatbridge).

New Members of Committee.—R. D. Keillor (Greenock), D. M. McIntyre (Montrose).

Mr. J. DICKSON thanked the members for the honour they had conferred on him and said that he hoped that

The New President, Mr. James Dickson, of Kirkintilloch, with Mrs. Dickson at Mount Melville.

at the end of his term of office they would be satisfied with the way in which he had carried out his duties. He then intimated that next Annual General Meeting would be held in Kirkintilloch, and added that the Town Council had promised to do all they could to make the occasion a success.

Mr. LEWIS BAIN (Cullen and Banff) said that as Immediate Past-President it was his duty to present to the President the customary memento. He knew how deep was Mr. Bruce's interest in the Association. They had had a demonstration of what he and his Company had been able to do for the Association. It had often been said that Mr. Bruce was lucky in his Directors, but they were equally fortunate in having a man of the ability and enthusiasm of Mr. Bruce.

Mr. BRUCE, in returning thanks, said that he had had many failings. He did think that here in Fife a very happy condition existed among gas managers. Their interest was still in the gas business and he considered that no business was worth having without enthusiasm. There was a great future for gas, but in Scotland they had been too conservative and had suffered too much from an inferiority complex.

A vote of thanks to the scrutineers, to Mr. Carmichael, to the President and Council, to the Secretary, the Royal Burgh of St. Andrews, and the St. Andrews Gas Company was proposed by Mr. MCLUSKY.

A CENTENARY LUNCHEON.

In celebration of the centenary of the St. Andrews Gas Company, a luncheon was held in the Volunteer Hall, St. Andrews, on Thursday, Sept. 12. Members of the Association and their ladies were guests of the Company, and

Mr. Harry Coates, of Burnley, and Mr. George Mitchell (Glasgow).

between three and four hundred enjoyed excellent hospitality.

After the Loyal Toast had been observed, the Toast of "The Gas Industry" was proposed by Mr. J. CARGILL CANTLEY (Chairman of the St. Andrews Gas Company). Mr. Cantley said that the delegates knew so much more about the Industry than he did that he did not feel qualified to say very much. Most of his experience was on the administrative side, but he realized, as everyone did, that in recent years gas had made wonderful advances. In the last twenty years they had had to compete with electricity, but though gas might have suffered in some respects by this competition there was room for both gas and electricity. It was his belief that electricity could not compete with gas for domestic and industrial heating, and he looked forward to further successes for the Industry. It was important to keep in view the interests of the consumers. A company should endeavour to give a fair return to their shareholders, but should aim at supplying gas at the lowest possible price. Nowadays

they had only a quasi monopoly, but though their monopoly was not now complete he saw no reason to fear the competition of electricity.

He wished to couple with this toast two names. The first was that of Mr. Bruce, and he assured the Association that they had been fortunate in getting him as President, and he was sure that he has made a most efficient Chairman. The second name was that of Colonel Carr, President of The Institution of Gas Engineers.

Colonel W. M. CARR, in replying to the Toast, said that they

were celebrating that day the centenary of the St. Andrews Company. Many other companies had passed their centenary and many others were approaching it, but the Industry was never younger. It was on the threshold of new achievements. They once had a monopoly, but this no longer existed. Lighting was now a secondary consideration, and their function was to supply heat for all purposes. The public must learn the truth that electricity had no function in the heating of homes. Gas could do this far cheaper and better. In this year of centenary in St. Andrews the Gas Industry was becoming more enlightened as regards the value and methods of propaganda. He hoped that this year would mark the beginning of a new

Authority, Young and Old.

era of progress in St. Andrews, as he was sure that it was the beginning of a new era in the Gas Industry of Britain.

Mr. A. S. NISBET (Paisley), in proposing the toast of the "City and Royal Burgh of St. Andrews," said that he would deal briefly with the claims of St. Andrews. These claims were many-sided. On the ecclesiastical side it was claimed that certain of the bones of St. Andrew had been brought here. St. Andrews had the oldest University in Scotland. Other cities might have more students and bigger and wealthier Universities, but those who prepared within the walls of St. Andrews University should be grateful for a great tradition. Another of St. Andrews claims to distinction was as the headquarters of a national sport.

Bailie CROSBY JOHNSON said that he did not know how to reply to the ecclesiastical and scholastic references which had been made. He was proud of the city and had absorbed some of the atmosphere and knowledge of the place. He hoped that the Association would enjoy their visit and that they would return.

An Honourable Age-Coming.

Mr. J. W. NAPIER (Alloa) proposed the Toast of "The St. Andrews Gas Company," and said that he regarded the invitation to propose this toast as a high honour. It was not without interest that the Company's Engineer and Manager should be President of this Association at this honourable age-coming, and that the Annual Meeting was being held in his own city. Mr. Napier's own year as President in 1929 marked the Centenary of the Alloa Gas-Works, and on that occasion the meeting was held in St. Andrews. But the personal interest of Mr. Bruce and himself reminded him of the business and family ties of the Younger family with Alloa and St. Andrews. The Donor of the Graduation Hall gifted to the University at a cost of £100,000, he would like to remind those present, was one of Alloa's principal sons of industry. Dr. James Younger, the Donor, and Mrs. Younger, were both natives of Alloa, and their magnificent gift would be a lasting memorial of their personal greatness in the quiet duty of wise giving. Their son, Captain J. P. Younger, was the present Provost of Alloa, and his capacity and success in filling the position were already beyond praise.

The St. Andrews Gas Company had enjoyed a hundred years of prosperity. The affairs of the Company had been directed by men of ingenuity and quiet bravery. One of the first Directors was the Professor of Greek, Dr. Alexander. Looking through the mists of the long years, he seemed to perceive the Professor under the light and shadow of a cockspur gas jet yet engaged in the accounting department of the Company writing out the consumers' accounts. His knowledge of Greek doubtless afforded him high proficiency in making out the customer's gas bills so that they could be but little understood.

Another one of the first Directors was a professor of mathematics, Prof. Duncan. His quiet genius for detail and efficiency must have been directed to the perfection of measurement of the gaseous volumes in the small gasholder. Also the calculation of molecules in the quantity of gas passing through the small bore pipes supplying light to the fishermen of St. Andrews in their dwellings on the cliff by the sea. It was his pronounced opinion that this first Director of the St. Andrews Gas Company of 100 years ago, a professor of mathematics, was the real discoverer of the therm.

A good relationship had always existed between the public of St. Andrews and the Company. The progress of the Company had advanced with years. For the first 20 years the output of gas was never more than 4 million cu.ft. Of recent years the output of gas had increased in a very marked degree. When Mr. Bruce came to the Company in 1918, the output was 46 millions; to-day it was over 100 millions. The policy to-day of the Company was to offer the public a supply of gas at a reasonable price, and this they did with first-class facilities to consumers in providing apparatus for heating and cooking. In this way they had secured for themselves a good standing in public opinion. The Company was recognized in the Scottish Gas Industry as one progressive in practical and commercial matters.

For years past the Company had had an intimate connection with the Town Council. Mr. Bruce was a Magistrate of the City, and Keeper of the City's finances. The Chairman of the Company, Mr. Cantley, was Town Clerk, a man of light and leading in the municipal affairs of the community.

Holding Companies.

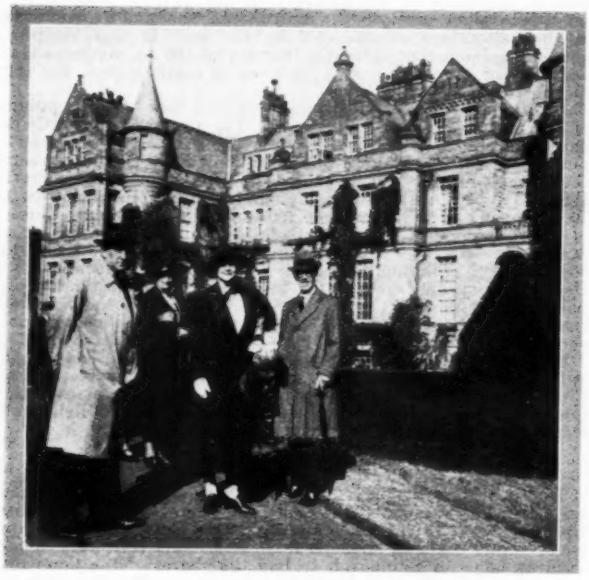
The past history of the Company, continued Mr. Napier, had been of good example. They had lately, however, been making fresh history. It was well known that a determined attempt was recently made by London financiers under a Scottish name with an office in Edinburgh to buy the shares of the Company at an attractive figure. Further, a tempting offer was made to the officials of the Company in the way of compensation, and a permanent lucrative position included. With great courage, and highly commendable action on the part of the Directors and shareholders the proposal was definitely refused. He was sure that it was the desire of almost every one present that he should congratulate the Company on their splendid public action. In no circumstance were they prepared to sacrifice the interests of the public of St. Andrews to the temptation of an enticing return for their shares. In this wise policy they had been ably and strongly supported by their neighbours the Cupar Gas Company.

But the St. Andrews Gas Company had done more than preserve for themselves their own well-assured security of investment acting as they do as trustees for the people of St. Andrews in the supply of gas. They had gone further and entered into a partnership with the Anstruther Gas Company whereby the rights and privileges of that Company were preserved to the present shareholders. The Anstruther Company was threatened with loss of administration, as in the case of St. Andrews. The St. Andrews Company could well be expected to make further progress in amalgamation of gas interests with

The President and the Hon. Secretary.

other gas concerns. Their power and influence would, it was earnestly hoped, be an example to other gas undertakings throughout Scotland not to continue as they were, but to seek to amalgamate with other Companies on a share value partnership. In this way, they would safeguard themselves from the control of pure financiers from London.

On this general question of the serious attempt now being made to purchase gas company undertakings in Scotland, he desired to offer his reflections on the situation. As was generally known, he had been intimately concerned with the affairs and proposals of several holding companies possessed of London finance to acquire gas-works in Scotland. Indeed, he felt



In the Grounds of Mount Melville.

guilty of having had advanced views on the subject and a certain amount of idealism. His inside knowledge of the proposals and policy of finance corporations to acquire a certain measure of control of the Gas Industry in Scotland compelled him to the conclusion that to accept would in the long run be fatal to the progress of gas in its economics of manufacture and the interests of public users of gas in the matter of price for domestic and industrial needs. It was likewise in no uncertain manner fatal to the instinct and spirit of gas engineering and management as a profession. No one desired to see carried out this attempt to have an imperial Gas Industry in Scotland.

The Industry in Scotland, as elsewhere, had been built up almost entirely by the application of the knowledge and experience of men of the profession in the Gas Industry. Their position had been safeguarded by administration of local Boards of Directors. The duty of local Boards was divided equally between shareholders and consumers of gas. If local executive control of gas as a public utility was once lost, a momentous sacrifice would have been made of local government control as a tradition of their country. He regarded the directors and shareholders of a gas undertaking as trustees for the public good. In Scotland this evidence was demonstrated in the large number of gas-works now under municipal control. If progress was to be made in administrative control, let it come from within the Industry itself with the resources of long years of experience. To hand over control to investment corporations was a weakness and a sacrifice. The endeavour of every gas company in the country was to sell gas as cheaply as possible as a protection to the Industry in view of competition from electricity, oil, and other fuels. The confidence of the public was an important asset, and it was largely on this evidence that the sales of gas were maintained and assured. Anything which would tend to destroy public confidence would create a menace to their business as gas suppliers. The welfare of the consumers of gas must come first.

Highly-Trained Personnel.

The manufacture and production of valuable residuals from gas which went to build up the wealth of other industries of the country must be maintained in the hands of men of technical education as the proper administrators. The Gas Industry, arising out of The Institution of Gas Engineers' Education Scheme, was being more and more directed by men of university training, and therefore of high standard and skill. Gas supply as a public utility was a secure and improving investment, and local administrative control and local influence should be maintained. Finance corporations with surplus money were willing to offer tempting prices for gas shares. The result in the process of time must be that a high price of gas must be maintained. He made this statement deliberately, knowing well that cheap money to-day would require a better return at some future time, and this visualized a continued high price of gas.

A feature of the situation, concluded Mr. Napier—and one not to be overlooked—was that a large number of Scottish gas companies were non-statutory, and this was the great attraction to outside financiers. It gave them perfect freedom after their own will to fix any price of gas desired in order to maintain high dividends, and this in the absence of a maximum price and sliding-scale instituted by Parliament for the protection of gas consumers.

Mr. J. CARGILL CANTLEY, in reply, thanked Mr. Napier for the manner in which he had proposed the Toast. A Centenary was an important event. Not many individuals achieved it, and nowadays there were not many companies who survived for a hundred years. He hoped that if they lasted another hundred years they would have attained a still greater prosperity, as he felt sure that there was a great future for gas. Their works were in perfect order, and for this they had to thank Mr. Bruce. They had been approached by a large financial concern, but they had had little hesitation in turning down the offer. If the St. Andrews Gas Company was a good thing for a financial concern, then it was a good thing for the St. Andrews Company. The Directors were not influenced by the bait. St. Andrews would not amalgamate with a large London concern, but they are not opposed to amalgamation with local undertakings. A London firm might easily raise the price of gas during lean times, and to sell out to such a firm would not be in the best interests of the consumers.

The Toast of "The President" was proposed by Mr. T. CARMICHAEL, and Mr. BRUCE suitably replied.

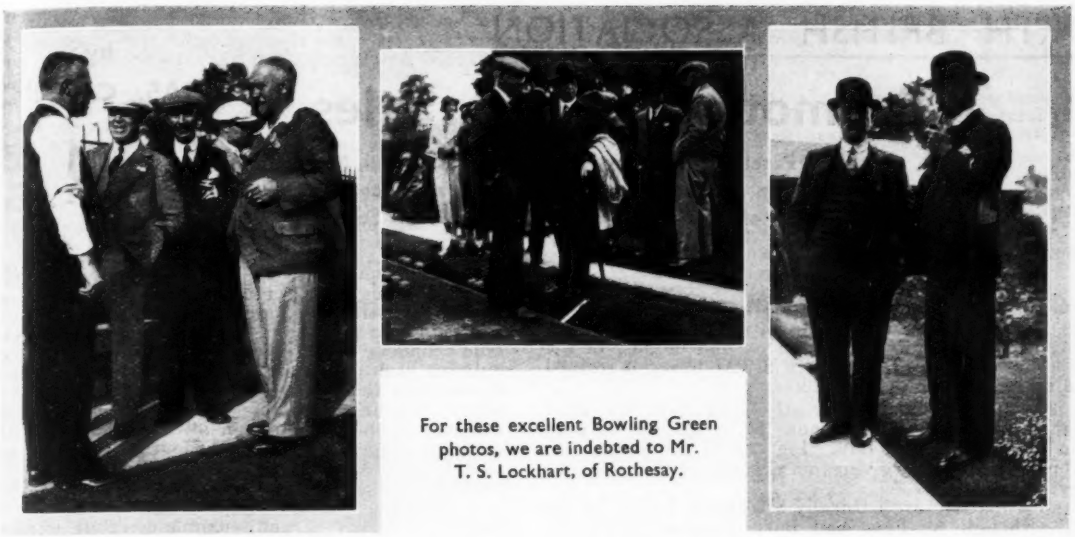
Civic Reception.

The Association was accorded a Civic Reception in the Younger Graduation Hall, St. Andrews, on Thursday evening, when the guests were received by Bailie Crosby Johnson and other members of the Town Council.

Bailie CROSBY JOHNSON said that they were meeting in the magnificent hall given to St. Andrews by Dr. Younger. He had already welcomed the Association and he had not much more to say except that he hoped that they would enjoy themselves and would find time to see some of the old buildings.

Mr. BRUCE said that they were all indebted to the Council and to Senior Bailie Crosby Johnson for the great interest they had taken in the meeting. Therefore on behalf of the North British Association he wished to thank the Town Council and Bailie Crosby Johnson and also Mr. Cantley and the other Directors of the St. Andrews Gas Company.

The members were then treated to a short vocal and instrumental concert in which the artistes taking part were



For these excellent Bowling Green photos, we are indebted to Mr. T. S. Lockhart, of Rothesay.

Miss Jean Whitehead and Mr. Peter Strong. After the Reception members of the Association were invited to a dance by the St. Andrews Gas Company and for those who did not dance a whist drive was organized. During an interval in the dancing the prizes for ladies' golf were presented by **Mr. Bruce.**

Friday's Excursion.

On Friday, Sept. 13, an excursion to Mount Melvill was arranged, and brilliant sunshine favoured the visit which was attended by about 150 people. Mount Melvill is the home of Dr. and Mrs. Younger and is a magnificent example of a country estate. Trim paths, well-kept gardens, and a lake were among a few of the features so rightly admired. The return journey to St. Andrews was via Durie Den, and members dispersed after luncheon in the Victoria Café, St. Andrews.

The Golf Circle.

The Autumn Competition of the Golf Circle was held over the Eden Course, St. Andrews, on the Wednesday. A large number of players competed, and the Challenge Bowl was won by W. F. Ross, Glasgow, with a score of 82 - 10 = 72. The Scratch Prize was annexed by R. Stewart, Auchterarder, with a score of 76. The complete prize list was as follows:

Section 1.

(Handicaps up to 15.)

1st . . W. F. Ross, Glasgow
2nd . . R. Stewart, Auchterarder
3rd . . R. L. Laing, Brechin
Tie { 4th . . J. R. Stevens, Elie
Tie { 5th . . Col. Glover, London
6th . . G. A. Mitchell, Glasgow

Section 2.

(Handicaps over 15.)

1st . . Thos. F. Scott, Leslie
Tie { 2nd . . Jas. Bell, Dumbarton
Tie { 3rd . . Jas. D. Couper, Glasgow
4th . . R. Hamilton, Dalkeith
5th . . A. W. Farquhar, Fraserburgh
6th . . M. D. Campbell, Bridge of Weir

After the day's play the Annual Meeting of the Circle was held in the New Club House, St. Andrews. The Captain, Mr. Walter Hudson, Manchester, presided, and after transaction of the customary business, he introduced as new Captain of the Circle Mr. David Fulton, Helensburgh. Mr. Fulton in a few words acknowledged the honour which had been paid him. He was glad, he said, that captains were not chosen by golfing ability, otherwise he would have had to wait a long time to realize what had long been a cherished ambition of his. He would, however, try to be a good Captain, and also to become a better golfer.

Mr. J. O. Scott was next re-elected Hon. Secretary and Treasurer, and in this connection Mr. Bell mentioned that the occasion should not be allowed to pass without reference to the fact that Mr. Scott had been Secretary of the Circle ever since its inception thirty years ago.

Mrs. Bruce then presented the prizes, and Mr. Hudson thanked her for so graciously carrying out the presentation, and Mr. Bruce for all that he had done in connection with the eminently satisfactory golfing arrangements.

Bowling Competition.

A Bowling Competition was held on the greens of the St. Andrews Bowling Club. The results were as follows:

Winning Rink—22 shots up.—W. H. Handley, Elland; J. Scobie, Stonehaven; R. Allan, Glasgow; A. Craig, Kilwinning (Skip).

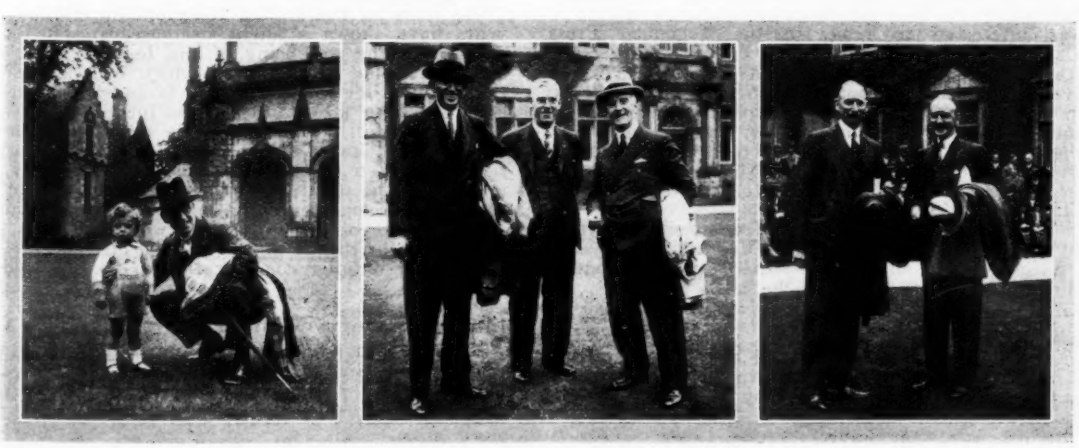
Second Rink—19 shots up.—W. Gray, Edinburgh; R. Malcolm, Glasgow; A. Hannah, Larbert; R. J. Philp, North Berwick (Skip).

Ladies' Golf.

A competition for ladies was held over the Eden Course on the afternoon of Wednesday, Sept. 11. The prize winners were as follows:

Silver Salver presented by Mr. W. H. Handley, Managing Director of Messrs. Robert Dempster & Sons, Elland, and prize presented by Mr. C. J. Gregg won by Miss Handley.

Prize presented by Mr. James A. Maclay won by Mrs. G. H. Keillor, Worcester. Hidden Hole prize presented by Mr. D. J. Thomson won by Mrs. J. B. Wilson, Nielston.



Left to Right.—Mr. John Wilson, with a small acquaintance. Ex-Capt. Walter Hudson, Capt. David Fulton, and Hon. Secretary J. O. Scott, of the Golf Circle. Mr. Davis De Bard, of New York, with Mr. J. W. McLusky.

NORTH BRITISH ASSOCIATION

Promotion of Gas Sales

by THOMAS CARMICHAEL

A Paper presented by Mr. Thomas Carmichael, M.Inst.C.E., at the Annual Meeting of the North British Association of Gas Managers at St. Andrews on Sept. 12.

Introduction.

When our President wrote asking me to read a Paper at this meeting he said that, as this was the centenary year of the St. Andrews Gas Company and because of the long association of my family with St. Andrews, it seemed to him fitting that I should address you.

I can assure him that I greatly appreciate the kind thought and consider it an honour to be allowed to take part in your meeting to-day. I accepted the invitation, however, with some misgivings on account of the difficulty of selecting a subject.

Technical matters are naturally attractive, but at Portsmouth, although we have had fairly exhaustive experiences of all types of carbonizing plant and the additional variety of a coastal works with no railway connections and an inland works, there is little that is sufficiently novel to relate and discuss.

The Gas Industry could not have any better commendation than this, and yet politicians, newspapers, and electricity enthusiasts are all urging the public to light, cook, heat, and do everything by electricity, regardless of the true economic facts.

It is well known that the Electrical Development Association has in view a campaign for the autumn and winter seasons, extending into the spring of 1936. This national publicity campaign is to be more ambitious and more prolonged than any previous National effort organized by the Association, and may be described as "the 1935-36 campaign for a million more consumers."

In the face of this impending attack, the Industry must act decisively and unanimously. It is essential to realize that, if gas sales are to be maintained and increased to the extent they undoubtedly can be, there is great need for increased co-operation within the Industry; improved and promotional tariffs; keen salesmanship and

Fig. 1.—Hot Water Demonstration Panel.
(For Showrooms.)

While the progress of amalgamations and possible "grids," distribution is full of interest, the subject of "Gas Sales" is undoubtedly paramount, and I have, therefore, selected the title "Promotion of Gas Sales" upon which to address you. At present our most pressing need is for more Papers dealing with any and every aspect of selling gas.

I was interested to read, in the Technical Press ["JOURNAL" for April 10, p. 102], our President's Address to the Spring Meeting of this Association, in which he gave some historical facts and figures, showing the growth of the St. Andrews Gas Company. This Address was both interesting and encouraging, and the mere fact that the output of gas has been more than doubled during the seventeen years Mr. Bruce has been Engineer and Manager, reflects considerable credit on his administrative capabilities.

We all remember the inspiring address given a few years ago, at one of our Conferences, by Mr. Arthur Hayday, M.P., Vice-President of the National Union of General and Municipal Workers, in which he said:

> "Gas has driven dirt, drudgery, and danger out of millions of working-men's homes and out of the factories in which they labour, and has given a chance of healthy and cheeful existence to the teeming populations of our towns and cities by halving the smoke and doubling the sunshine."

greater service to both domestic and large scale commercial and industrial consumers. There is no doubt that the use of electricity will continue to increase, and as the Gas Industry will feel the effects of intensified competition, each individual undertaking must realize the necessity for taking suitable counter measures.

Gas sales in the United Kingdom during the last two years have shown a slight decrease, and it is of vital concern to the well-being of the Industry that effective methods should be employed which will not only arrest this decline, but which will lead to an increase in business and to greater possibilities in the future.

Everyone will be ready to agree that, owing to specialization, the manufacturing side of the Industry has reached a high state of efficiency and is, to-day, well in advance of the sales and utilization sides. We should not, therefore, become too enthusiastic over some achievement in the sphere of gas production while the sales per consumer are on the down grade. The greater need, therefore, is for a fuller concentration upon sales and utilization of gas.

Impressions of a Visit to America and to Canada.

Of the general impressions formed of the Gas Industry in Canada and in the United States of America, given in a Paper which I read before The Institution of Gas Engineers in June, 1934 ["JOURNAL, May 30, 1934], I think

the following will bear repetition here as being appropriate to our subject, and as headings under which to deal with some of the more important methods necessary to encourage the extended use of gas for domestic and industrial purposes.

1. "Their method of fixing rates (prices) for gas is much more scientific than ours, and has been favourable to the development of the Industry. The rate schedules of some companies contain as many as ten rates for different classes of service. Almost every company has special rates, designed to secure the house heating business. The undertakings here must adopt new methods of charging without delay, as one of the most effective means of further popularizing the domestic and industrial uses of gas."
2. "Our advertising and propaganda methods are not so effective for three reasons:

   (*a*) Greater appreciation of the principles and practice of advertising and propaganda, and a more ready response by the public to the aggressive methods adopted.

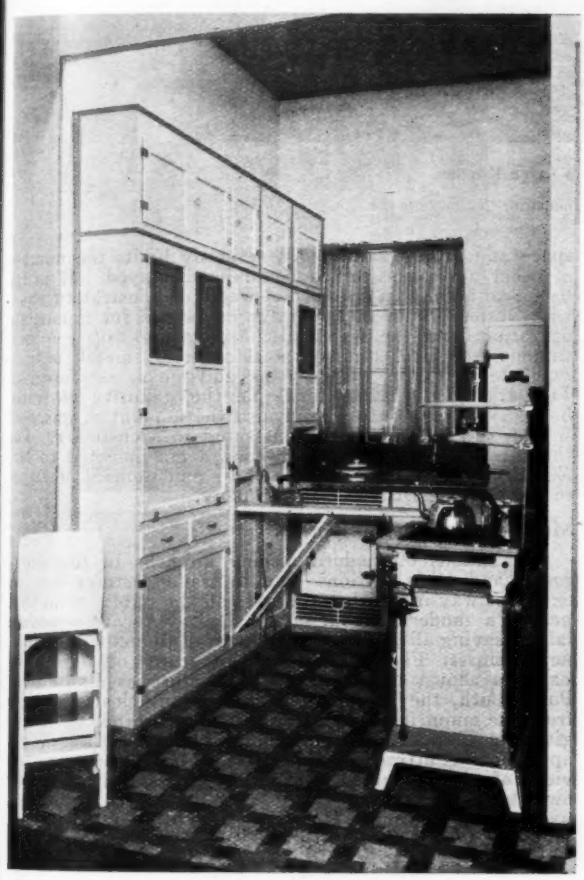


Fig. 2.—Ideal Small Kitchen.

(As shown at Portsmouth Industries Exhibition.)

   (*b*) The wide scope of the work of the American Gas Association, to which the Canadian Gas Association is affiliated.

   (*c*) The reluctance in this country on the part of most undertakings to employ a sufficient number of *more highly paid demonstrators and technically trained salesmen.*"

3. "In service to the consumer (including handling of complaints) our methods, although improving, are still behind those obtaining in the two countries. In this connection, great value is attached to the continued development of co-operative sales activities between the gas undertakings and members of the Plumbers' Association, and it would appear that an extension of this policy by many undertakings in this country is desirable in order to give maximum service to the public."
4. "Amalgamations and joint working of undertakings have taken place in many parts of the countries visited. In this country there are good reasons for pressing forward with similar schemes for putting the smaller concerns under the wing of larger and better-equipped undertakings, but, from what could be gathered from informal talks with our friends abroad, there is danger in going too far in this direction of grouping."
5. "Finally, with the help and guidance received from the Canadian and American Gas Associations, the gas undertakings over there are successfully meeting electrical development, the attractions of which are even more formidable and more forcibly presented than in this country. The thought carried away is that more attention to sales and utilization of gas is urgently required in this country and is of vital concern to the well-being of the Industry and to every individual connected therewith."

Promotional Rates.

There is no doubt that present methods of charging for gas require to be amended in some way, and in considering the matter of tariffs, comparison with the electrical industry cannot be avoided. Here are found tariffs of all kinds operating for the purpose of increasing the consumption of existing consumers and obtaining additional customers.

The old flat-rate system of charging is not equitable and does not encourage a large consumption per consumer. The block system is stated by some to be defective because it ignores the demand factor. The two-part tariff, many say, will not operate because consumers will not pay two standing charges—*i.e.*, one for gas and another for electricity, but it must be admitted that Colonel Carr and others have proved that in their areas this method of charging is a valuable aid to increased sales.

There are great difficulties in selecting a comparative tariff from the many that are now in operation in this country. Local conditions must influence the decision, but whatever tariff is framed, it should be such as will retain the existing loads and secure additional business.

Some two years ago, the methods of charging for gas at Portsmouth were very fully studied and, after careful consideration, a block system of promotional charges was adopted. The highest selling price of gas is 7d. per therm, the lowest "off-peak" block price being 3½d. In arranging a block system of charging it is essential to see that the steps are made sufficiently steep to encourage the domestic consumer to adopt an all-gas house. This is, of course, difficult to arrange, especially in a case such as Portsmouth where the flat-rate price is low, and while it is realized that the early block prices are not so attractive as they might be, it is hoped, at a not too distant date, to increase their gradients or to introduce an alternative optional tariff.

Portsmouth is not an industrial city and, therefore, the amount of gas sold for commercial and industrial purposes is small in comparison with the quantity so used in the majority of our cities and towns. We endeavour to secure whatever industrial load is possible, and for off-peak consumptions such as night bread-baking, the price is reduced to 3½d. per therm. Each load is considered on its merits and a method of charge devised to attract the business to gas, principally in displacing solid fuel and oil.

By use of special tariffs the electrical industry has taken away some of our business and it behoves every gas undertaking which has not already done so to introduce, without delay, competitive tariffs to suit varying local circumstances. The urgency in this direction is great, and undertakings should consider the advisability of taking advantage of the powers afforded by the Gas Undertakings Act, 1934, to offer attractive tariffs to their consumers with a view to increasing the sales of gas. In the memorandum on methods of charge recently issued by the National Gas Council a definite offer of assistance is made to all undertakings which accept the recommendation to revise and extend their charges.

Progressive Advertising and Propaganda.

Amid the changes in social and industrial conditions which have taken place during more recent years, it is not surprising to find that the average person is displaying an interest in the various forms of advertising. "Mr. Therm," for example, has been the direct cause of much complimentary comment and some caustic criticism. This interest in advertising is a stimulating and significant fact which should provide us with much food for thought.

The British Commercial Gas Association has done good work in the realm of advertising, but much remains to be done. We read, with mixed feelings, that the Gas Industry's expenditure on advertising based on turnover is far smaller than that of many other industries and it will be necessary, in the near future, to plunge our hands more deeply into our pockets. If we are satisfied that the volume of advertising carried out by the Gas Industry in the past has had good results, we should feel no trepidation at the prospect of spending more on what has been aptly referred to as "the fertilizer of modern business." With the con-

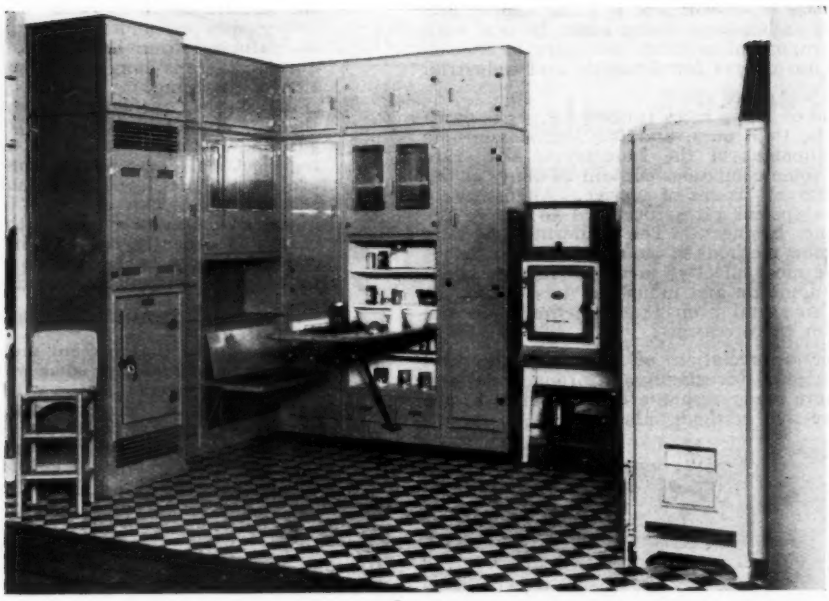


Fig. 3.—Lay-out for a Large Kitchen.

(As shown at Portsmouth Industries Exhibition.)

tinued increase in competition, expenditure upon various activities and services—including publicity and propaganda —will have to continue to increase correspondingly.

The bulk of advertising matter issued by the British Commercial Gas Association is essentially of a national character, and has a remarkably wide appeal. Each individual gas undertaking, however, has to meet its own local circumstances and conditions, and many of these cannot be effectively dealt with by national advertising. Because of this, local publicity assumes supreme importance, and the future of many gas undertakings may well depend upon the virility, effectiveness, and consistency of the advertising matter they produce. The advertising of the future must be so relentlessly progressive as to impress upon the public the efficiency and reliability of gas.

The problem of counteracting the effect of the statements, often misleading, which our chief competitor is so fond of reiterating in all manner of advertising media, is not easily solved. There is little doubt that the British Commercial Gas Association has an excellent grasp of the situation, but, locally we sometimes feel that our competitor is getting away with it too easily. When we view these attacks calmly, we see that the public is only mildly interested, and is not likely to be swayed in the wrong direction so much as we fear. Nevertheless, we must give to every attack the attention it calls for.

Lay-out of Showrooms.

To-day, it is imperative that every gas undertaking, whatever its size, should have one or more well-designed and attractive Showrooms.

It has been estimated that about 60 to 70 % of the average household expenditure is disbursed by the housewife, and she has been educated by the large stores to make her purchases in comfort. Gas undertakings, therefore, must fall into line and provide such a degree of comfort and display as will encourage consumers to visit the Gas Showrooms more frequently than has been the custom in the past.

In the United States of America the Showrooms of the undertakings are commodious and every comfort is provided. In most of these premises there are small tables and chairs so that customers and showroom attendants may be seated while transacting business.

The general lay-out and arrangement of appliances in the showroom are of the utmost importance and call for considerable knowledge in the art of display. If cookers, fires, and other appliances are just grouped around the showroom, without design or any real attempt at display —as indeed is frequently the case—the effect can only be uninvitingly like that of a stockroom.

Everything should be shown to the best advantage because, if appliances are made to look attractive, the desire to possess is created in the minds of consumers which eventually leads to an order.

Among the larger undertakings, it has been a common practice, for many years past, to arrange a fitted bathroom complete with bath. This, of course, takes up valuable space and, at the same time, seriously limits the number of other appliances which could be displayed. It is far better to arrange a special hot-water demonstration panel with various types of apparatus connected for immediate operation, and the water discharging into either a continuous trough of stainless steel or monel metal, or into separate porcelain wash basins and sinks, as shown in Fig. 1. In this latter example the quantity of water heated, its temperature, and also the amount of gas consumed, can be quickly demonstrated to a customer. For the permission to include this view I am indebted to Mr. E. Allison, M.Inst.Gas E., Engineer and General Manager to the Gosport District Gas Company.

Modern Kitchen Equipment.

Installations of modern display kitchens in the showrooms and at exhibitions—and in traders' stores—are an excellent way in which to impress on the public mind that gas is a modern labour-saving fuel. An ultra-modern labour-saving all-gas kitchen cannot fail to hold and attract new business. Figs. 2 and 3 are photographs of two kitchen exhibits shown last year at the Industries Exhibition, Portsmouth, the popularity of which was clearly evident from the enquiries dealt with. Every assistance should be given in planning kitchens and making the use of gas appliances as attractive as possible. Figs. 4 and 5 are two views of a gas operated kitchen designed and fitted by our own staff.

Window Display and Lecture Rooms.

During the last few years, considerable attention has been given to window display, and it must be admitted that, in consequence, there has been great improvement in this direction. It is very pleasing to note that the British Commercial Gas Association has taken the long delayed step of instituting a properly organized Display Department under the direction of a skilled officer, and the demand from undertakings upon this Department has been enormous.

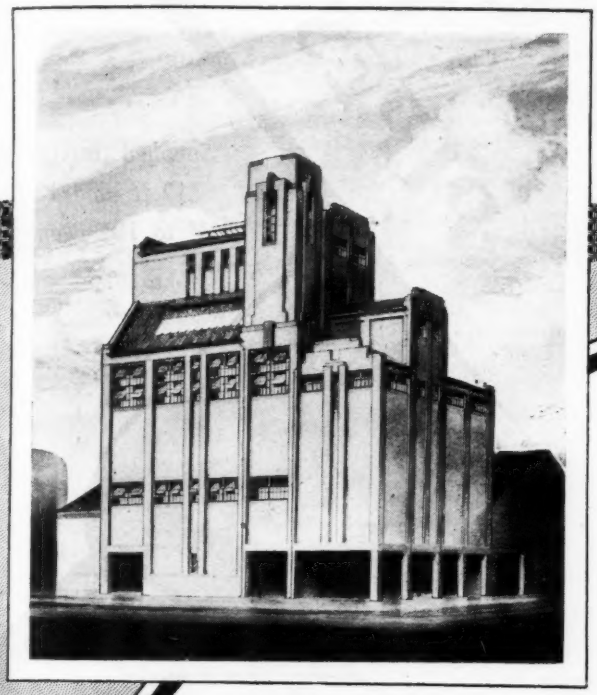
A room primarily for use as a lecture hall for cooking demonstrations is of real practical value, and where possible should be included in the designs for new showrooms. Incidentally, by lending it to various local organizations, such a room can be made an effective publicity contact. In my own Company, the lecture hall is regularly loaned to the Chamber of Commerce, the Display Association, Tailors' and Cutters' Association, and many other Societies, and very beneficial publicity is indirectly obtained which amply repays the Company.

Among the larger undertakings in the United States of America, these lecture halls are sometimes engaged for what, in Great Britain, would be considered unusual purposes. For instance, a consumer may, by arrangement, use the hall for a bridge party, lecture, or demonstration of some kind, or for any social function, on the understanding that the hostess and her guests will be willing to listen to a short talk on gas appliances. An endeavour is always made to blend these informal talks with the aims of the

WOODALL-DUCKHAM

CONTINUOUS & INTERMITTENT

VERTICALS



Design Drawing for the new Installation at Loughborough

INSTALLATIONS IN COURSE OF CONSTRUCTION

	Capacity in Tons per Day
ALGIERS (North Africa)	213
BARI (Italy)	24
BIRMINGHAM (9th Installation; Windsor Street)	591
BRECON	10
CHESTER	132
ELGIN (2nd Installation)	12
EPPING	25
ILKESTON	65
LIVERPOOL (3rd Installation)	153
LOUGHBOROUGH	42
ROME (Italy)	304
STOURBRIDGE (3rd Installation)	63
WANDSWORTH (2nd Installation)	200

Modernisation and Reconstruction Work is in progress at:—

BIRMINGHAM, HULL, SMETHWICK, NOTTINGHAM, MARGATE, KENDAL, ABERDEEN, GREENOCK, IPSWICH, GLOSSOP AND KENSAL GREEN

THE WOODALL-DUCKHAM VERTICAL RETORT AND OVEN CONSTRUCTION CO. (1920) LTD., EBURY & ALLINGTON HOUSES, 136-150 VICTORIA STREET, LONDON, S.W.1

Members of the Society of British Gas Industries

Telegrams: "Retortical, Sowest, London" Telephone: Victoria 8631 (6 lines)

The CLAY CROSS Co LTD for SPUN IRON PIPES

Also Manufacturers of—
Vertically Cast Iron Pipes. Concrete Lined Spun and Cast Pipes. Special Castings, Lamp Columns, etc. Pig Iron. Gas Coal. Fuel Economisers. Tarred and Dry Roadstone. Lime, etc., etc.

Supplied in Lengths
12 ft. and 18 ft.
3" to 18" Diameters

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PADDINGTON 8123

particular function, and to avoid making the gas propaganda too obvious. The undertakings sometimes arrange to supply the refreshments, and thus obtain further advertising benefit in demonstrating the quality of gas-cooked food. It is unlikely that this method of propaganda could be carried out in its entirety in this country, but from my experience at Portsmouth, the provision of a lecture room which can be loaned to various local organizations is a good investment.

Staff Training as an Aid to Sales.

Advertising, however well done, and properly arranged showrooms are not in themselves sufficient to obtain the utmost benefit from expenditure on publicity and propaganda. It is also essential that the salesmen, and all members of the staff, whether inspectors, clerks, meter readers, collectors, or fitters, are properly trained and competent to take full advantage of the opportunities which advertising has created for them.

In the past we have relied too much on the salesman who, without specific training, has a natural capacity to please, satisfy, and convince, and have overlooked the considerable help to increased sales which every employee can give if only he is provided with an opportunity for training, and is posted with the various appliance campaigns before they are advertised. Training in some form is, therefore, desirable in all cases where employees come into personal contact with consumers.

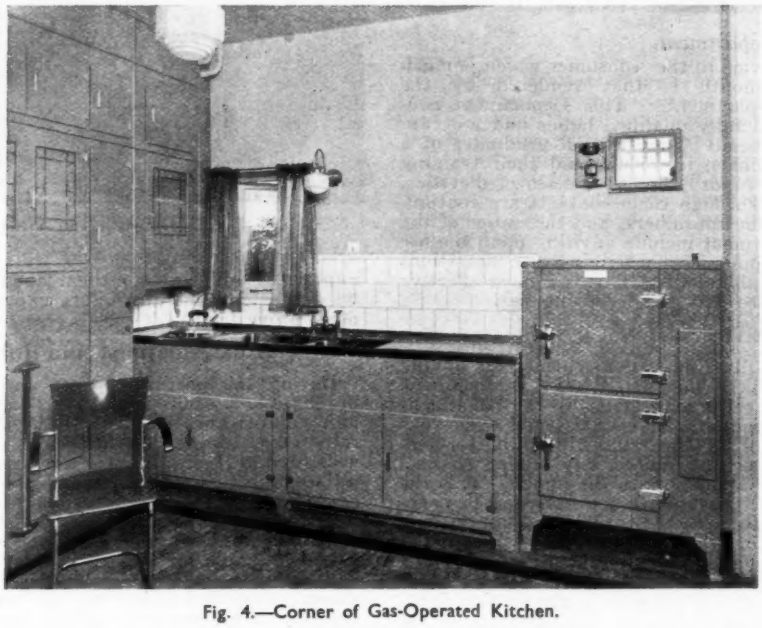

Fig. 4.—Corner of Gas-Operated Kitchen.

(Designed and fitted by the Portsmouth Gas Company.)

In my own Company, the training of employees has undoubtedly been of inestimable value and assistance in increasing sales. During the winter months, periodical lectures are given to the employees, who attend for instruction in their own time. At the end of the lecture criticism on the subject dealt with—and also of the Company's sales policy—is invited, and such criticism has been found to be very helpful. Advantage is also taken of the British Commercial Gas Association Course in Domestic Gas Salesmanship.

Before any sales campaign is launched, a sample (or samples) of the appliance, together with a notice giving the prices, conditions of sale, and the best selling points, is placed in the mess room at each of the various works, and also in the gasfitters' congregating room. By this means, every man has the opportunity of examining and making himself fully acquainted with the appliances, prices, and best sales arguments.

The fundamental importance of the personal element in consumer relationship is now clearly recognized in commerce, and the Gas Industry must ensure that its personnel is fully competent to win the utmost support of the public, and that no ground is lost to competitors due to consumers lacking confidence in our staff.

Commission Scheme.

Commission is also paid to each employee who secures an order for an appliance. Payment of commission is in many places regarded with disfavour but, in my experience it has definitely increased sales. I am indebted to Mr. S. E. Whitehead, B.Sc. (Eng.), Engineer and General Manager to the Southampton Gas Company, for his permission to publish a system of payment which has produced fruitful results at Southampton (see Appendix). One criticism which is likely to be raised is the somewhat arbitrary way in which the varying commissions have been fixed for the different appliances, but the reasons for this are: firstly, to make the commission proportional to the selling effort rather than to the value of the appliance; and secondly, by altering these rates, when required, to assist in boosting the sale of certain appliances—*e.g.*, if a water-heating campaign was started, the Company would probably increase the commission on water heaters as compared with, say cookers, which at the present moment have a greater tendency to sell themselves. Although the scheme appears complicated, it works out simply in practice and it is pleasing to state that the members of the sales staff are very well satisfied with the operation of and the benefits derived from the scheme.

Service Before and After Sales.

Efficient Service.

Our electrical competitors are tapping all sources in order to increase the consumption of electricity—the success of the grid depends upon their ability to do so—and they are concentrating upon the domestic field to give them that extra output by which it is hoped to level up the valleys in their hourly and daily graphs. There are, therefore, in this country, two large heat-providing industries fighting for the same load, and success, or failure, is in our own hands. We must ensure that our commodity is beyond reproach; that tariffs are such that they encourage greater sales and obtain new business; that the most efficient appliances are supplied and at rates as cheap as, if not cheaper than, those of our competitors—even if we do not make a profit on them—that the salesmen on the district keep the consumers gas-minded, and above all, that our service is 100% efficient.

There can be little doubt that, in the future, the success and prosperity of any undertaking will very largely depend upon the vital problem of service after sales. We must strive to give our consumers the highest possible satisfaction, and this service, which cannot be overdone, will prove to be the best inducement to the extended use of gas.

Inspection and Maintenance.

The most progressive undertakings have already realized that service rendered to the consumer pays, and many have inaugurated a system of periodical inspection and maintenance of appliances as being the best method of securing the object in view, besides providing opportunities for further sales.

The Portsmouth Gas Company has had such a scheme in operation for several years. Consumers' premises,

whether supplied through an ordinary or a prepayment meter, are visited every six months, hotels and large consumers being in most cases visited once a month. A record, or census card, is provided for every consumer, upon which are recorded full particulars of the sizes of the service, meter, pipes, and appliances installed, and the condition of the whole internal fittings and system.

In this way the Company has acquired a complete census of the installation of every consumer in the area of supply, which furnishes a valuable mine of information upon which special sales campaigns are based. During the year ended Dec. 31, 1934, the cost of this service to the Company, less overhead charges, was well under a halfpenny per 1,000 cu.ft. sold, and it is regarded as money well spent. The consumers appreciate the service rendered, and it has resulted in the installation of a very large number of additional appliances. For greater details of this inspection and maintenance scheme reference can be made to the Paper by Mr. A. J. Garward, Sales Manager to the Portsmouth Gas Company, entitled "Holding and Creating Business" ["GAS SALESMAN," July, 1931].

Sir Francis Goodenough made specific reference to the value of a census scheme in his Paper presented to the Victoria Gas Industry Centenary Celebrations in these words:—

> "The value of such a census scheme has been proved up to the hilt. Not only does it provide a complete record which serves as the groundwork for all subsequent sales activities; not only does it increase the goodwill of the consumers; it also pays its way by the immediate sales which are secured."

Women's Advisory Department.

Another phase of service to the consumer which is much appreciated in Portsmouth is that rendered by the Women's Advisory Department. This Department consists of four young and fully qualified ladies under a capable and experienced head. They are all graduates of a recognized college of domestic science and their training has covered cooking, laundry, domestic science, dietetics, and invalid cooking. Through them contacts are continually being made with the consumers, and the duties of the members of this Department include advising upon the use of cookers and other appliances and giving demonstrations in showrooms and in public halls. This is a most effective way of rendering service and of advertising gas.

Trader Co-Operation.

Several undertakings have launched schemes for linking up traders with their operations, and I feel it is incumbent on all of us to consider the lead given by the Americans and by some undertakings in this country, and endeavour to follow the example of the electricians in selling through the ironmongers, stores, and indeed any trader channel which helps the sale of appliances to the public. It is the opinion of my Directors that if we are prepared to negotiate fairly and faithfully with the traders and appropriate bodies, there is no reason why, in a very short time, many additional sub-showrooms and capable part-time salesmen should not be added to our strength. If this is done, it will make a vast difference to our business in the coming fight. Further, one cannot over-emphasize the importance of maintaining amicable relations with local heating contractors and plumbers by passing to them work in connection with complete heating systems or the fixing of boilers. This policy will create the desire on the part of heating contractors to co-operate with the gas undertaking in its efforts to extend the use of gas in this field, by advising their clients to adopt gas-fired installations.

A large proportion of the work of selling and installing gas burning equipment, which, in Great Britain, is performed by the gas companies, is, in the United States of America, undertaken by plumbers and gasfitters employed by private traders. It is estimated that slightly more than one-half of the appliances sold is handled by the undertakings, the remainder being sold and fitted by dealers. This practice has the support of the American Gas Association and the arrangement of work is greatly assisted by frequent meetings with a committee of the Plumbers' Association. The importance of this branch of the companies' work may be judged by the fact that about 200 gas companies, serving over 7 million consumers, have agreed to the principle of the disposal of appliances and the rendering of service through dealers and plumbers. By co-operating with dealers in this way, it is realized that a selling service exists for appliances, and through them for gas, outside the gas undertakings themselves, and it is strongly felt that in this direction much more can be accomplished by undertakings in this country.

The promotion of gas sales through dealers is of sufficient importance to recommend that all undertakings' sales managers review their present system, or in the absence of a system, consider the advisability of adopting one. The more people we can get talking intelligently about gas appliances and through them about gas, the greater will be gas sales, and any effort expended along these lines must prove fruitful.

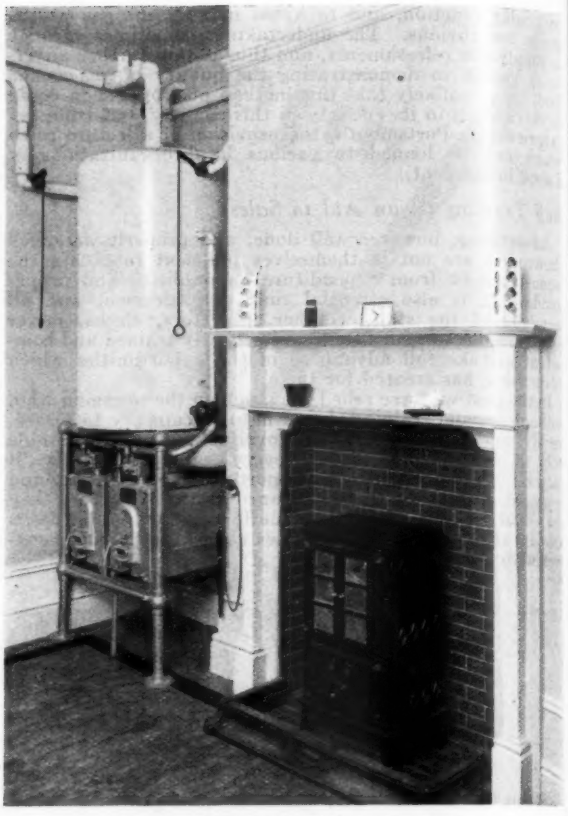

Fig. 5.—Domestic Hot Water Installation.

Amalgamations and Joint Working.

During the past few years amalgamations, either by purchase or by bulk supply, has taken place to a considerable extent, and, at present, the larger undertakings are fully alive to the advantages of extending their supply areas and of negotiating for the acquisition of undertakings adjacent to their present areas of supply. Several notable examples may be instanced, one of the most recent being Portsmouth and Gosport, which have agreed upon terms for amalgamation, and these proposals are now before the Board of Trade for approval.

Stockholders of both Companies, in accepting the proposals, were influenced by the advantages of increased security of income and capital, and also by the fact that the merging of interests would enable a common commercial and technical policy to be formulated over an area of 200 sq.miles. By this union of interests the resources will be co-ordinated, and the savings effected in management will enable the price of gas to be reduced forthwith in the Gosport area by one penny per therm, and the wages of the employees there to be increased. A further result of this merger will be that the two Companies will be placed in a stronger position than before to meet growing competition.

Gas grouping under a holding company has also obtained considerable prominence throughout the year, and diverse opinions have been expressed as to the best procedure in such circumstances, and also as to the advisability of the direction of gas administration by financial influence with or without technical control. The Ex-President, Mr. C. Valon Bennett, M.I.Mech.E., dealt with this question in his Address to The Institution of Gas Engineers, and said:

> "It cannot yet be determined if all expectations of those connected with this development in the Gas Industry will be fulfilled nor if the fears will be realized of those who believe that the movement is not a wise and healthy one."

It will be agreed that undertakings too small to possess skilled technical control and financial equipment are a source of weakness to the Industry as a whole. If these undertakings are to render satisfactory service to the public in the areas in which they now operate and to combat effectively a well organized competitor, only physical amalgamation with more efficient undertakings or geographical grouping will assist them out of their difficulties.

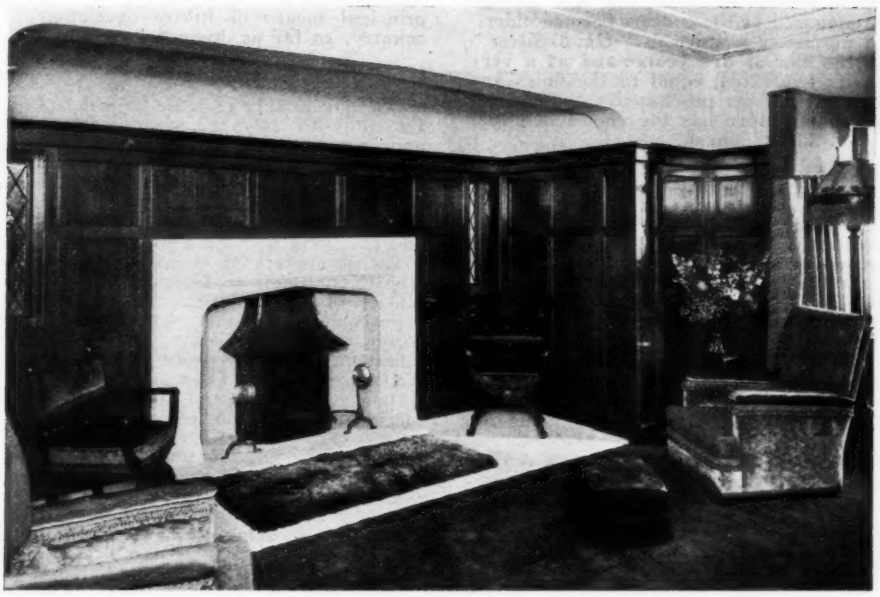

Fig. 6.—Gas-Ignited Coke Fire

In some instances it is felt that geographical grouping of gas-works would be advantageous to all, and undertakings, where suitable areas exist, should not hesitate to enter into conference with a view to agreeing upon a co-ordinated system of management. There are many economies to be effected and, if it comes from within the Industry, the practice will be all for power, the furtherance of the use of gas and the strengthening of its position throughout the country.

Gas-minded people are undoubtedly in favour of amalgamation or of grouping, which will result not only in a lower price of gas and better service to the consumer, but in decided benefit to the Gas Industry.

Domestic and Industrial Sales.

Consumption per Consumer.

According to the latest statistics, the number of gas consumers throughout the country is increasing, but, unfortunately, the consumption per consumer is decreasing year by year. In Portsmouth the peak output per consumer was reached in 1927. During that year the average consumption per ordinary consumer was 48,861 cu.ft., and per prepayment consumer 32,736 cu.ft. For the year 1934 these figures had dropped to 42,569 cu.ft. for the former, and 28,875 for the latter. Upon investigation, the chief cause of these reductions was found to be the loss of the lighting load to electricity. It is the old story—the customer changes to electricity, not because he is dissatisfied with gas lighting, but because he must have electricity for the all-electric mains wireless receiving set. Further, at present, almost every new house that is built in Portsmouth is being fitted with electricity for lighting, notwithstanding that we offer substantial rebates for lighting points and very low charges for the piping of houses. Other factors adversely affecting the consumption per consumer are as follows:

1. Greater efficiency of the gas appliances being sold to-day.
2. More economical use of appliances through operation of advisory staffs.
3. The preparation of smaller meals in the home as a result of increased consumption of prepared foods and fruit.
4. The competition of solid fuel and of oil with gas for water and space heating.

It is useless, however, to delude ourselves by saying that the loss is due entirely to the above reasons. It must be an obvious fact to most of us that the chief cause of reduced gas consumption is loss of the lighting and, in some cases, the heating load to electricity.

There is reason to belive that this loss of business is not confined to Portsmouth, but is typical of what is occurring in almost every gas undertaking's area in this country.

Additional Appliances.

In an endeavour to replace business already lost, the Portsmouth Gas Company is doing everything possible to encourage the use of new and additional appliances by pushing the sale of the lesser known appliances, such as poker-burners, refrigerators, clothes dryers, washing machines, and airing-cupboard heaters.

The electrical industry, being new in this field, is able to supply its consumers with all-enamelled cookers, while the Gas Industry is somewhat handicapped in this respect by reason of the thousands of black cooking stoves at present supplied on simple hire.

This problem of the black cooker has been uppermost in the minds of all those connected with the selling side of our Industry for some time past. To scrap all the black cookers now in use is a policy which requires a great deal of courage, not to mention capital. In considering this question, it must not be overlooked that the present craze for chromium or rustless steel may reduce the present demand for all-enamelled cookers by providing a finish equally bright and attractive which is more easily cleaned and yet more durable than enamel. In our deliberations to evolve a policy some years ago, consideration was given to this matter, and two points claimed special attention:

1. The efficiency of the existing black cooker.
2. The colour and finish of such a cooker.

With regard to the former, stoves then being supplied on simple hire had already been thoroughly renovated and brought up to date by fitting new high efficiency hot-plates. Therefore, from the point of view of efficiency, there was no need to scrap black cookers which had been purchased during the previous five years, and consideration was given to finding a finish which would enhance their appearance and meet the modern demand for a cleaner and brighter appliance.

To overcome this serious defect of lack of appearance, many experiments were made with mottled heat-resisting enamels, and eventually a metallic paint was evolved which is now known as "Oxi-di-Silver." After extended experiments with this finish in the test rooms, and following experience on the district, it was finally decided that the most economical and convenient way of overcoming the objection to the "black cooker" would be to finish all hired appliances in this way. The appearance is attractive and the many expressions of appreciation received definitely confirm that this "Oxi-di-Silver" finish meets the requirements of the consumers. It can also be recorded that the introduction of the "Oxi-di-Silver" coloured cooker has been very helpful to the Sales Department in retaining the use of cooking stoves and in displacing many all-enamelled electric cookers.

It will be appreciated that the "Oxi-di-Silver" finish cannot be regarded as a permanent one and the cookers will require to be sprayed and stoved each time they are returned to the workshops, as was formerly done in the case of the black cookers.

But neither is the porcelain enamel finish permanent. In a large number of cases the enamel stains and chips and, contrary to the advice of the Company, many consumers will persist in using abrasive cleaning powders to remove grease, with the consequent result that many all-enamelled cookers are to-day badly marked, and dissatisfied consumers exist because the cost of re-enamelling the ap-

pliance is prohibitive. This dissatisfaction will become very much more pronounced as the cookers become older.

A consumer who purchases a stove in " Oxi-di-Silver " finish can have at the end of five years—and at a very small cost—the cooker renovated, equal to the finish and condition as on the day it was purchased. A consumer purchasing a new cooking stove has the choice of either all enamel or " Oxi-di-Silver " finish.

Space Heating Load.

The space heating load in the smaller houses must be obtained, but the present charges must be amended if progress in this direction is to be made. The gas fire load is expensive to the undertaking owing to the variability of the British climate; and gas is still too dear for general and continuous use by the consumer. The remedy is to devise methods of charge which will attract new business in the houses of existing domestic consumers and principally at the expense of coal. It is time this conversion business was catered for, as it must be obvious that it will be one of our largest and most promising heating fields. For illustrations of conversions recently made see figs. 6 and 7.

It is doubtful if we shall ever attract a large central heating load beyond that of a few large public buildings. It is a very keen market and, while I am eager to obtain any business for gas, central heating is not one of the most profitable loads. It is a seasonal load which coincides with manufacturing and distribution peaks, and it is questionable whether many of the minimum prices quoted to-day can be fully justified on purely economic grounds.

Domestic Hot Water Load.

Domestic hot water heating is a large potential load hardly yet exploited and more attention ought to be given to it. If the low tariffs which are published from time to time for gas used in central-heating installations were quoted for the domestic hot water load there would be reason to anticipate a very considerable immediate increase in gas consumption from a load attractive to gas undertakings. One hesitates to estimate the ultimate extent of this load, but from scattered information it would appear to reach 20% or even more of existing total gas output. These figures are ideal, but so would the modern domestic cooking load have appeared, say, 40 years ago. As regards the coke which must inevitably be displaced, the sales technicians can be depended upon to preserve a balance by securing coke sales development in large heating operations such as industrial and other boiler plants.

The substantial consumption obtained in Canada and the United States by the use of gas for water heating is demonstrated by the following figures. Montreal, for example, is installing water heaters of the coil and storage type at the rate of over 8,000 per annum, while, in Philadelphia, there are 240,000 in use. Although the geyser type of water heater is now almost non-existent, it was particularly interesting to hear of the success in both countries in obtaining so substantial a load for water heating, because such a load, if sought on the lines indicated, will be the principal means of future development for gas in this country, so far as domestic consumption is concerned.

Heat Required in Industry.

We may further increase the sales of gas by giving careful study to the heat requirements of every commercial and industrial concern within our areas of supply. There is also profitable business to be secured through the established small trader in non-residential towns and undertakings will be astounded at the number of avenues which can be opened up for developing existing consumptions and obtaining new business from this source.

The promoters of competitive fuels, such as oil, electricity, coal, and producer gas, are fully alive to the possibilities of this market, and to make the most of our opportunities, we must, without delay, organize the forces to explore these avenues. As previously stated, tariffs, salesmenship and service must be the chief weapons. Success cannot be expected in this field with a flat-rate system of charge, and undertakings must offer a promotional tariff which will obtain the business for gas.

Suction Gas Conversion.

A few months ago it came to the notice of the Gas Company in Portsmouth, that a large local firm of manufacturers was using suction gas for power purposes and also for certain heat processes in their factory. The Managing Director of the manufacturers was interviewed, the case for town gas was put before him, and a price quoted which compelled attention. As a consequence, a series of tests was carried out by the Gas Company's Industrial Engineer in conjunction with the Engineer of the factory, and it was proved that gas, at the price offered—viz., 4¼d. per therm, showed a saving as compared with the running costs of the producer plant.

The results of the subsequent conversion contained a highly interesting feature. The factory gas engines when running on suction gas had been insufficient to generate the whole of the electric current required in the factory, and a Corporation electricity supply—through a rotary converter—had been in use in conjunction with the suction gas engine, to augment the output to the total required. On town gas this engine developed sufficient power for the whole requirements of the factory, and the matter ended happily, in a definite decision to use the town gas permanently. The estimated consumption will reach approximately five million cubic feet per annum.

Solid Fuel Conversion.

Again, it was decided to use solid fuel boilers with automatic stoking machinery for the central heating installation of a large new school in Portsmouth, accommodating about 2,000 children. The advantages of gas were put forward, and, eventually, gas-fired boilers were installed. The consumption last season for this installation amounted to 7 million cu.ft.; and the price per therm (obtained with some difficulty) was 4¼d. Being entirely a

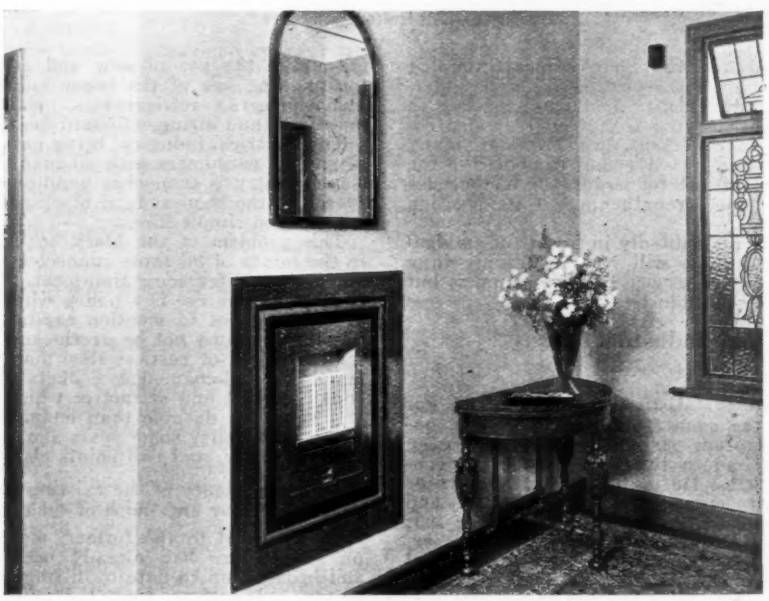

Fig. 7.—A House Reconstruction showing Panel Gas Fire in Hall.

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Quality is the keynote of the "Calthorpe" Cooker. Attractive design, enduring enamel finish, and high standard of cooking efficiency have combined to make this Parkinson cooker the delight of many thousands of housewives. The "Ajusto" automatic oven heat control enables a complete meal to be cooked at one setting.
Satisfy your consumers...
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PARKINSON
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MODERN GAS COOKER

THE PARKINSON STOVE COMPANY LTD. BIRMINGHAM
London Showrooms: Terminal House, Grosvenor Gardens, S.W.1
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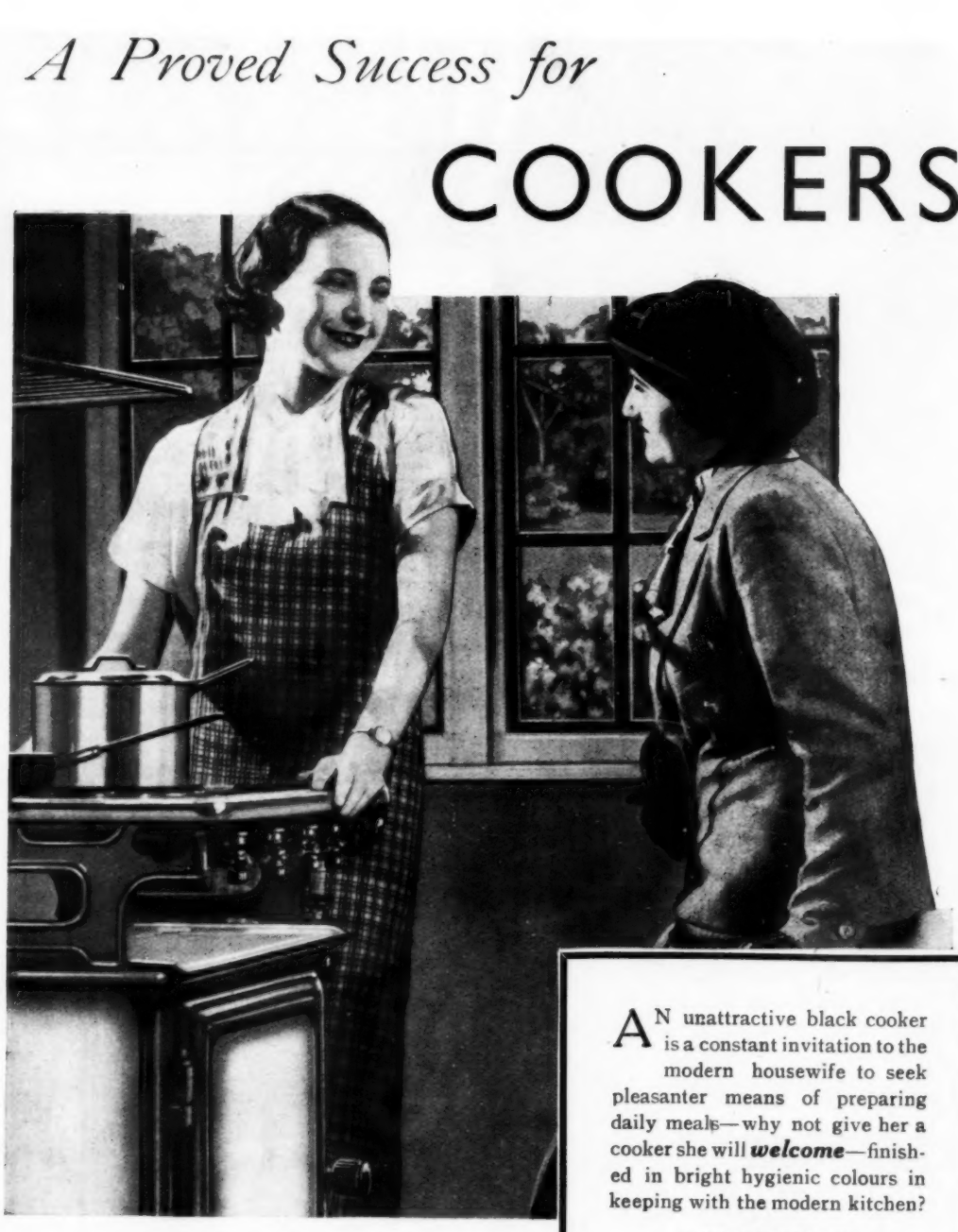

Highest heat-resistance and durability—BY TEST.
Stoving time only 20-30 minutes.

Foochow
ORIENTAL LACQUER

Please address your enquiries to—SERVICE MANAGER, DEPT. 4

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MITCHAM, LONDON, AND KNOTT MILL, MANCHESTER

AN unattractive black cooker is a constant invitation to the modern housewife to seek pleasanter means of preparing daily meals—why not give her a cooker she will ***welcome***—finished in bright hygienic colours in keeping with the modern kitchen?

"FOOCHOW"
OXI-DI-SILVER
finish
For COOKERS

Thousands of cookers have now been finished by this process with unqualified success.

LET US SEND YOU PARTICULARS AND SAMPLES.

winter load, this conversion to gas is not so profitable to the Company as in the previous case.

Such examples as these afford evidence that, provided our tariffs are sufficiently elastic to meet requirements, large scale business can be obtained.

The assessment of the potential loads in such cases as those quoted presents rather a problem, but from the results of certain individual installations approximate figures are obtainable. For instance, for bread baking purposes, the consumption is approximately 2·3 therms per sack of flour—*i.e.*, per 500 persons per day, which load, if acquired throughout the Gas Industry, would be equal to almost 4% of the present gas output. The competitive price of gas for this not inconsiderable night load is 3½d. per therm.

We are all, no doubt, familiar with the admirable tables of comparative costs of different fuels for various purposes, as supplied by the Industrial Gas Development Centres and the London and Counties Coke Association's Technical staff, which show that gas at 4d. to 5d. per therm, and coke at 25s. to 30s. per ton should successfully compete with oil and coal.

The difficulty seems to be the breaking down of the conservatism of the satisfied oil or coal user and convincing him, by comparative figures or practical demonstration, that such is the case. This, to my mind, is where the sales technician could render very valuable assistance. I need not elaborate details as doubtless we all have instances which may well be left to the discussion which I hope will follow.

A great point in our favour is that we are advocating British fuels and labour, against largely foreign products (in the case of oil), and wasteful use of coal resources.

Sales Personnel.

Technical Salesmen.

The salesmen are to be congratulated on the results so far attained by the effective exercise of their "art," but we seem to have arrived at a point where much more is required than the technical efforts already assisting sales, in order to effect conversions from competitive fuels to gas, which conversions in some cases mean the complete remodelling or rebuilding of the apparatus in use.

Until recent years, the technical side of the Undertaking was undoubtedly the manufacturing, or works side, including the Laboratory or Chemical Department. In fact, it may be said that gas and coke, to a large extent, sold themselves since they had little real competition.

The works' personnel has been developed technically in order to increase efficiency in every detail. In the early days it was largely a matter of carbonizing or gas-making but, as operations increased, the mechanical—and later, the electrical—engineer added their technique until a works' complex has naturally evolved, which has been the basis of the Industry's success. The subject of examination in our business was, within the knowledge of many of us, "Gas Manufacture," and only within the last generation has the syllabus included a course to cover "Gas Supply." The result of all this increased efficiency is that the selling price of gas has been continuously reduced.

It is, therefore, probable that, so far as the production of cheap gas is concerned, existing processes can do little more.

I suggest that, in order to meet the competition of electricity, fuel oil, and cheap low grade solid fuel with gas and coke, our sales personnel should include, or be augmented by, a staff of technical engineers specially trained in the technology of fuels—a staff always available to advise and prepare schemes to effect conversions from competitive fuels to gas.

We are all well aware that this idea was at the basis of the formation of the Gas Development Centres and also of such bodies as the London and Counties' Coke Association Technical Committee. The larger undertakings have their own research laboratories, but the question is, how far does the technical work done make contact with the actual consumer? Our individual sales staffs must include salesmen who are engineers, and therefore as technical in the use of all classes of fuel as are our works' staffs in gas manufacture and distribution.

Industrial Department.

The most important consideration in the organization of an industrial sales department is, undoubtedly, the personnel of that department. Where the size of the undertaking warrants it, an expert should be appointed to keep in touch with large scale users and to inspect the appliances periodically, in order to ensure that they continue to function efficiently and satisfactorily. The officer in charge should possess the knowledge and experience of a trained technician and engineer, and be capable of expounding the merits of gaseous fuel in comparison with competing fuels. He should also be able to quote actual costs and, where necessary, to demonstrate the advantages of gas for the particular purpose under consideration.

It is not easy to obtain men with such qualifications, but the success of any industrial department is largely dependent upon the knowledge and ability of the officer in charge.

It is here that the Industrial Gas Development Centres, with their Central Information Bureau, set up under the ægis of the Joint Co-ordinating Committee can be of material assistance. Throughout the country these centres have been set up with competent staffs, whose duty is to collate information, so that it is available for member undertakings. Trained industrial engineers are also available for consultative work. Gas undertakings cannot be too strongly recommended to link themselves up with the nearest centre, if they have not already done so. They will find themselves amply repaid, as the benefits accruing to undertakings are many and valuable.

Conclusion.

It was not the purpose of this Paper to review the whole of the subjects coming within the category of the promotion of sales nor the commercial side of our Industry—time would not permit—and even such aspects of these subjects as are referred to have been but lightly touched upon.

There is no doubt that much has yet to be done in "Promotion of Gas Sales," the Industry having touched only the fringe of many of its essentials. It is the author's opinion that, if we are to hold and extend our sales in the face of keener competition, success will only be achieved provided:—

(1) That our commodity is offered at prices which will secure business;
(2) That our service after sales is 100% efficient;
(3) That our advertising and publicity is more attractive, effective, and forcibly presented;
(4) That we employ a sufficient number of more highly-paid demonstrators and technically trained salesmen; and
(5) That no channel is left unexplored through which all domestic and industrial consumers may become gas-minded and impressed with the reliability and efficiency of gas.

Appendix.

Commissions to Sales Staff.

Sales Divided into "Complete" and "Assisted."—A "complete" sale is one which is both initiated and concluded by the same member of the staff. An "assisted" sale is one which is concluded by a salesman, but has been initiated elsewhere.

Table of Commissions on "Complete Sales."

Appliances.	New Fixtures.		Exchanges.	
	Cash.	Limited Hire.	Cash.	Limited Hire.
	%	%	%	%
Cookers	1·25	1·0	0·94	0·75
Fires	5·0	4·0	3·75	3·0
Radiators	3·0	2·4	2·25	1·8
Gas-coke fires	3·0	2·4	2·25	1·8
Geysers, sink heaters, &c.	3·0	2·4	2·25	1·8
Circulators	3·0	2·4	2·25	1·8
Wash boilers	5·0	4·0	3·75	3·0
Washing machines	1·5	1·2	1·12	0·9
Refrigerators	1·0	0·8	0·75	0·6
Outside lamps	4·0	3·2	3·0	2·4

Commissions on "assisted" sales one-half above in each case.
The commission on displacement sales is increased by 25%.
The commission on small sales (irons, pokers, toasters, rings, matches, &c.) not less than 5s. in value is 4d.

Commission on Sales to Non Sales Staff.

All employees (other than certain senior members) who are not on the Sales Staff, receive Commission on all sales initiated by them, on the following modified scale:

Appliances	New Fixtures.		Exchanges.	
	Cash.	Limited Hire.	Cash.	Limited Hire.
	%	%	%	%
Cookers	0·625	0·5	0·47	0·375
Fires	2·5	2·0	1·875	1·5
Radiators	1·5	1·2	1·125	0·9
Gas-coke fires	1·5	1·2	1·125	0·9
Geysers, sink heaters, &c.	1·5	1·2	1·125	0·9
Circulators	1·5	1·2	1·125	0·9
Wash boilers	2·5	2·0	1·875	1·5
Washing machines	0·75	0·6	0·56	0·45
Refrigerators	0·5	0·4	0·375	0·3
Outside lamps	2·0	1·6	1·5	1·2

The initiator may be any other member of the staff, or the sale may be initiated by advertisement, showroom window display, &c.

All showroom sales are classed as "assisted."

An "Assisted" Sale earns one-half of the Commission on a "Complete" Sale.—When the sale is initiated by another member of the staff, he is paid the remaining half of the commission.

Full commission rates based on the actual selling price of the appliance (*i.e.*, excluding governors, fixing costs, interest charges, &c.) have been fixed, and are given in the first column of the accompanying table.

Full commission is payable only on a "complete" sale covering a new fixture for cash. ("Cash" means any sale other than limited hire.)

An exchange earns 75% of the commission payable on a new fixture.

A limited hire sale earns 80% of the commission payable on a cash sale.

No commission is payable on simple hire business.

Name..... **INSPECTION OF INTERNAL PIPES, FITTINGS AND APPLIANCES.**

Address..... *Class of Premises*..... *District*.....

CENSUS

SERVICE.	MAIN COCK AND METER CONNECTIONS	METER.	HOUSE PIPES.	LIGHTING.	HEATING.	COOKING	HOT-WATER	LAUNDRY
Size of Service	Size of Main Cock	Size of Meter	Iron or Compo	Number of Rooms Lighted by: GAS / ELECTR'Y	No. of Fires in Use: ON HIRE Size Desc. / OWN Size Desc.	ON HIRE Size and Maker	Are any of the following installed	Is a Wash-Copper Installed
							Circulator	
Condition			Size of Rising Main				Califont	Is it Heated by Gas
							Bath Room Geyser Size / Gallons	
Is it necessary to Relay?		Should Meter be Changed?	Size of Cooker Supply	If on Company's Burner Mainten'ce		OWN Size and Maker	Is Baffler Fitted / Is Fume Pipe Fitd.	Is Gas Iron in Use
					RADIATORS		Sunhot	
If so, what Size?	Size of Connections: INLET / OUTLET	If so, what Size?	Size of Geyser Supply	Are Fittings suitable and satisfactory		Is a Hotplate Installed		Is Gas Heated Washing Machine in use
							Sink Water Heater on Hire / Own	
Is Syphon Required?		Condition of Meter	General Condition of Pipes	Is the Type of Burner in use satisfactory	Are Gas Fires Hygienically instal'd	Is a Griller Installed	Coke boiler	Is Gas Heated Drying Cabinet in use
							Range boiler	
		Is Position Satisfactory?	Are Pipes of Adequate Size	How many Flat Flame Burners in use	How many Poker Burners in use	How many Boiling Rings in use	Is there a Bath-Room?	Is Electric Washer installed? / Is Electric Iron installed?
ELECTRIC APPLIANCES								

Special Census Reports.

Particulars of any Appliances or Fittings which are considered to be Dangerous or Unsuitable are to be entered here.

INSPECTION OF INTERNAL PIPES, FITTINGS AND APPLIANCES.

Regular or Special Visit	DATE		Complaint Code	ROAD	SERVICE	MAIN COCK	METER CONNECT'NS	METER	HOUSE PIPES	LIGHTING: Fitting	LIGHTING: Burners Maint'en'nce	LIGHTING: Burners Casual	HEATING: FIRES On Hire	HEATING: FIRES Private	HEATING: RADIATORS On Hire	HEATING: RADIATORS Private	HEATING: Sundry Appliances	COOKING: COOKERS On Hire	COOKING: COOKERS Private	COOKING: Hot Plates	COOKING: Grillers	COOKING: Boiling Rings	HOT-WATER: Circulators	HOT-WATER: Califonts	HOT-WATER: Geysers	LAUNDRY: Wash Coppers	LAUNDRY: Gas Irons	FITTER'S INITIALS
				A	B	C	D	E	F	G	H	H	J	J	K	K	L	M	M	N	O	P	R	S	T	V	W	

WILLEY & CO·LTD

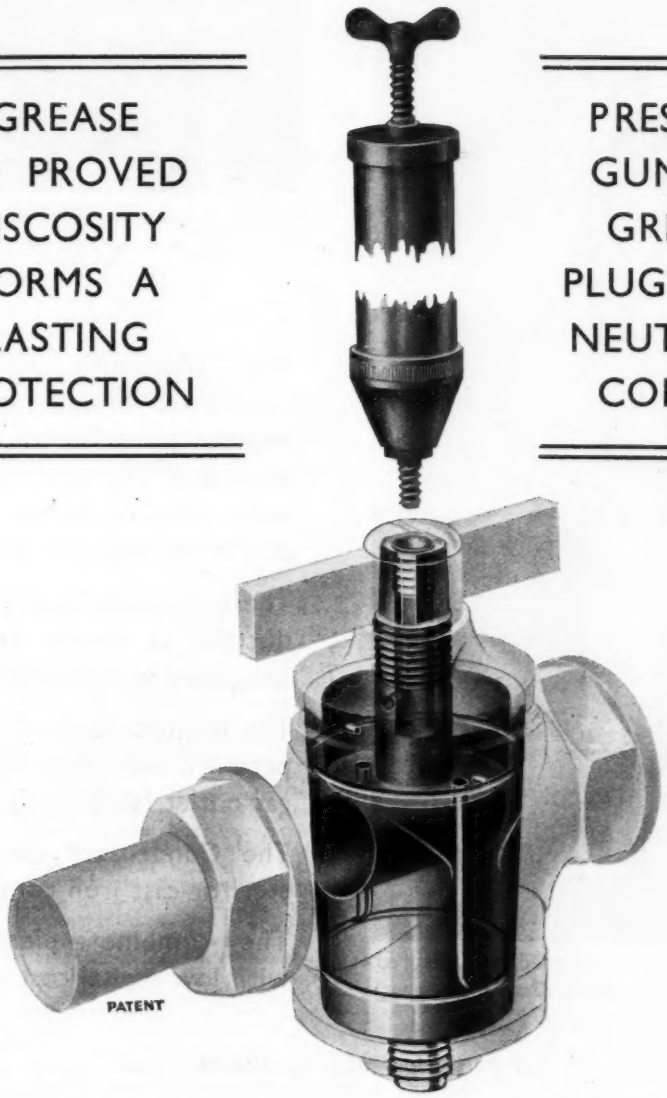
MAKERS OF EVERYTHING FOR GAS.
Phone EXETER-4064-5

MEETING A LONG FELT WANT

A REALLY EFFICIENT GREASER MAIN-COCK

GREASE OF PROVED VISCOSITY FORMS A LASTING PROTECTION

PRESSURE OF GUN FORCES GREASE TO PLUG OF COCK NEUTRALIZING CORROSION

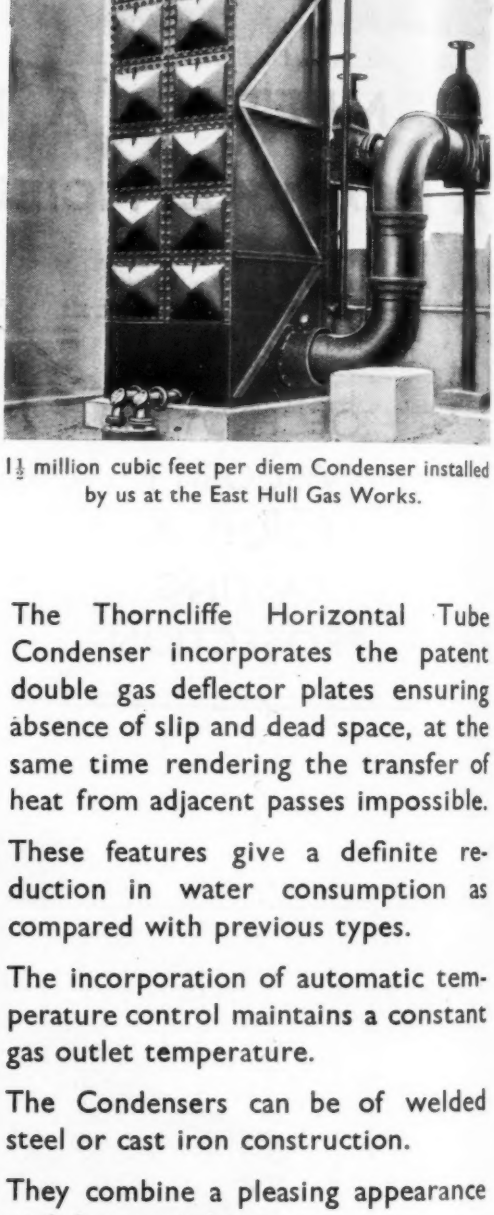


THIS COCK WILL REMAIN SOUND *and* EASY FOR LONG PERIODS

AN EASY TURN PLEASES YOUR CONSUMERS

SAMPLES AND PRICES ON APPLICATION

A Revolution in GAS CONDENSER Design



1½ million cubic feet per diem Condenser installed by us at the East Hull Gas Works.

3 million cubic feet per diem Condenser, designed, manufactured and erected by us for the West Bromwich Gas Department.

The Thorncliffe Horizontal Tube Condenser incorporates the patent double gas deflector plates ensuring absence of slip and dead space, at the same time rendering the transfer of heat from adjacent passes impossible.

These features give a definite reduction in water consumption as compared with previous types.

The incorporation of automatic temperature control maintains a constant gas outlet temperature.

The Condensers can be of welded steel or cast iron construction.

They combine a pleasing appearance with low capital cost.

Write for full particulars and specification to :

NEWTON CHAMBERS THORNCLIFFE & Co LTD

Nr SHEFFIELD

Dickson

Commissions payable on "complete" sales are, therefore, as shown in the table.

Commissions payable on "Assisted" sales are one-half of these amounts respectively.

A "displacement" sale is one in which electricity or oil is actually displaced by gas, and will earn an additional 25% of the appropriate commission.

Payment of Commission will be made Quarterly.—The foregoing rates and conditions are subject to variation at the discretion of the management, and large-scale apparatus is subject to special rates. In the event of a limited hire appliance being returned within eighteen months owing to discontinuance of instalments, the commission paid will be deducted from subsequent payments.

If any difficulty is found in ascertaining the correct selling price, or the percentage of commission payable, these may be left blank, and will be filled in at the office.

Notes.

(*a*) It is in most cases desirable that sales should be concluded by a salesman, who will follow up all forms sent in.

(*b*) In the event of a limited hire appliance being returned within eighteen months of sale, owing to discontinuance of instalments, the commission paid will be deducted from subsequent payments.

(*c*) Payment of commission is quarterly.

(*d*) In case of difficulty, the selling price of the appliance, and the percentage commission payable may be left blank, and will be filled in at the office.

(*e*) The above rates and conditions are subject to variation at the discretion of the management, and large-scale apparatus will be subject to special rates.

(*f*) The General Manager's decision on all matters is final.

Discussion

Mr. Davis De Bard (New York) said the Paper which they had heard was a splendid contribution, and he would endorse all the points brought out by Mr. Carmichael. He was employed in America by Stone & Webster, who began as a simple engineering concern and then formed Stone & Webster Service Organization, which included gas, electricity, water works, and tramways. The companies were not owned by Stone & Webster, who merely serviced the companies and provided trained managers. In 1921 some of the older companies were approached by holding companies and Stone & Webster found it necessary to form a new organization to take them over. He was associated with this organization as sales manager, and he was making a report on conditions prevailing in a great many countries, including Great Britain. The operations of the Gas Industry in Great Britain were excellent, and he was sure that he could take a great many lessons from it. In America most of the appliances had been supplied on the instalment system, and when the depression came no one would risk taking appliances on this plan. He had found that the simple hire system had proved most satisfactory, and he had put out more appliances on this plan than on the instalment system. He charged at the rate of 4s. per month, and after 60 months the company made a present of the appliance to the consumer. During this year and last year he had collected a great deal of information on tariffs. The great difference in America was that they had as many as ten or even more different rates built on a step system. They had a service charge based on a flat charge, and then they had blocks of energy for cooking, water heating, space heating, and a special rate for house heating. Last year there had been a demand that the service charge should be abolished, and they had put the service charge into the first 5,000 cu.ft. They were now giving free energy after the consumer had used as much as he had used in the corresponding period last year. A specially reduced rate was given for anything over this amount. The consumer wanted to take advantage of this free energy, and the sale of appliances increased. He was trying various plans in order to obtain new business. One of these schemes was to appoint a district representative who was responsible for 1,000 consumers. He read the meter, collected the bills, and did everything his block of consumers required. He was introduced by a card on which was his photograph. In order to get new business service was more important than anything else, and the additional cost of the service was comparatively small. In America they had spectacular campaigns in which all employees took part, and in which they might have to employ additional men. Such displays pay good dividends. One of the most important things is to make people conscious that gas is up to date, and everything should be done to help communities to develop new industries and to popularize gas.

Need for Tariffs.

Colonel W. M. Carr said that he could endorse what Mr. Carmichael had said in his Paper. He came home from America with the impression that, on the selling side, they were much in advance. This country must take steps to catch them up, and this could only be done by co-operation in the Industry. Many people said that they did not get enough help from the National bodies; but he asked if we were all making enough of the help that was available. He thought that the answer was in the negative. With regard to tariffs, Colonel Carr said that there was not a single progressive undertaking that did not have tariffs. They would lose business without tariffs, and it was a great risk to remain on a flat basis. His own Company at Stretford had greatly increased their business, and this increase was partly due to tariffs and partly to the employment of three first-class industrial salesmen. These men went into manufacturers' works and talked in terms of process costs and were able to state that the work would be done using gas at so much per unit of output. If this could be done then there was a great future for gas. It was ridiculous that some undertakings in this country were afraid to spend even a small amount on advertising. He felt that he must congratulate Mr. Bruce on having persuaded Mr. Carmichael to deliver his Paper, because one of the most important things to-day was the sales side. This Paper would stimulate them all to greater things.

Mr. D. Fulton (Helensburgh) said that it was during an inspired moment that Mr. Carmichael had been asked to come to the city of his forebears and deliver this Paper. He had finished with five points which every gas manager should learn by heart. Tradition was against gas managers in effecting a change from a flat rate to a two-part tariff on simple lines, and a campaign must be conducted among boards of directors and Town Councils before this change could be effected. He had already had such a change before his Council, but it had been turned down and instead there had been a reduction in the flat rate. This would be beneficial temporarily, but it would not be permanent. In connection with the change he had proposed, he had discovered that one-quarter of the consumers used two-thirds of the gas sold. These people should get preferential treatment over the other three-quarters who only used one-third of the gas. Special rates should be given to make consumers use more appliances, and the rates should be such as to promote the greatest sale of the best appliances. He did not think that gas managers got the best treatment from the manufacturers of appliances in view of the fact that every gas manager was an additional salesman. He asked Mr. Carmichael if he could tell him the cost of "Oxi-di-Silver" treatment. After-sales service he considered essential, and he was becoming more and more conscious of the good to be obtained by advertising. He issued little personal bulletins and considered that these had an appeal which was lacking in general advertising material. He advised gas managers to try preparing advertising material themselves. With regard to holding companies he said that they were not evil in themselves, but when the financial control overcame the technical, then the holding company became an evil thing. One good thing about a holding company was that it provided sufficient personnel to carry out a sales campaign. Town Council administration was not too good as the Council changed too often. He had kept his position by intense canvassing, and it was his opinion that one could not sit still and wait for customers. The lighting load was going, and nothing could be done in this respect to bring it back—all they could do was to fight a defensive battle.

Mr. J. W. McLusky (Glasgow) said that it was a mistake for a gas manager to spend his whole day in the works; in fact, he did not know what a manager could find to do all day in a properly organized undertaking. The manager should spend a good part of his time out among the consumers. With regard to Mr. Carmichael's Paper, Mr. McLusky referred to the section on tariffs and summarized Sir Philip Cunliffe Lister's advice on the subject of tariffs. Sir Philip's advice amounted to this: "Introduce your scheme when financially able to make a reduction in prices. If possible hold on to the existing flat rate, thereby securing revenue from that source which would enable them to deal generously with types of consumers who were paying more than their share of the standing charges; above all, avoid the possibility of being accused of class distinction." Mr. McLusky then said that his American impressions had prompted him to avoid complicated schemes, and considered that the Glasgow standard consumption method was the simplest in existence, as it gave every consumer equal opportunity to qualify for the secondary rate, which was 6d. less than standard. Since the scheme was inaugurated in 1931 the gas consumption had steadily increased, in spite of electrical competition and oil canvassers, and the flat rate had been reduced from 3s. 6d. to 3s. It was reduced because a bait of 6d. made people talk and only cost £10,000, while a reduction of 1d. per consumer meant a loss of £35,000. Mr. McLusky went on to refer to gas showrooms and asked how often the gas showroom was the most attractive shop in a small town or village. Every manager, he said, could make a great furore about a retort or holder but could not make a furore about a showroom. It was his opinion that unless more attention was paid to the sales side there would be no necessity to worry about plant. A showroom need not be large but it must be attractive, and Mr. McLusky asked managers to compare the capital of their company with that of small dealers with attractive shop fronts and then think shame of themselves. One of the commonest arguments against publicity was "Why worry? You have a monopoly." A reply could be given to this by quoting the fact that in the last ten years 33,000 houses had been built in Glasgow, and all were wired for electricity. That, said Mr. McLusky, was the monopoly the Gas Department enjoyed in Glasgow. This was not a signal of defeatism, but rather did it act as an incentive to drive the sales machine harder. They had approached the housing people with regard to an all-gas scheme, and for this purpose had been given a slum clearance scheme. Last year this had resulted in a return

of £31,000, which was greater than that obtained from some of the better class schemes. Another thing which Mr. McLusky had found beneficial was the sale of burners. He had sold 1,500 first-class burners and regulators, and every consumer who had one was using more gas and was perfectly satisfied.

Mr. D. VASS (Perth) said that there were too few advertisements giving the price of gas in terms comparable with electricity. Gas was advertised at so much per 1,000 cu.ft. and electricity at so much per unit. Gas should be quoted in units comparable with the unit of electricity, and then it would be seen that gas was cheaper.

Colonel CARR said that there was one point he had omitted to make in his previous contribution to the discussion. It was in regard to the payment of commission. This should be calculated on the amount of gas used by the appliance and not on the actual price.

The Author's Reply.

Mr. T. CARMICHAEL, replying to the discussion, wrote: The remarks by Mr. De Bard and Mr. McLusky were helpful and valuable. It must be realized, however, that no one can be dogmatic about tariffs, as districts and conditions vary so widely. The development of gas sales must be chiefly at the expense of solid fuel, and the "commodity charge" or "final block charge" must be low enough to attract this business. I do once again strongly urge every undertaking to consider this question and to form for itself a competitive tariff. As Colonel Carr said, "no one can afford not to do it."

I most heartily agree with the remark that the subscription to the National Bodies of 10s. per million cu.ft. of gas sold "is simply ridiculous," and, as stated in the Paper, we must, in view of the keener competition to come, be prepared to dip deeper into our pockets if we are to win through.

In reply to Mr. Fulton's remarks, I would point out that in making a comparison between the cost of the renovation of hire cookers from the district with black and with silver finish, the following points must be taken into consideration:

(1) With the silver finish a grey undercoat and a silver finishing is required, compared with the one coat of air drying black.

(2) The castings before painting with the silver finish have to be of smoother finish than was the case with the black, on account of the fact that the silver paint does not conceal the rough finished iron so well, thus impairing the final appearance of the cooker.

(3) Greater supervision is required in the case of the silver finish in the cleaning of the stove body prior to painting, in order to ensure a perfect rust-free surface. Any imperfections upon the surface of the castings due to faulty cleaning are at once apparent after the stoving of the silver finishing coat, thus ruining the final appearance of the cooker.

(4) The oven doors in the case of the silver finish have to be fitted with much greater care in order that any danger of fumes escaping from the oven due to a badly fitting door is avoided.

To assess these points in terms of cost per stove renovated is not a simple matter, but comparing the results of the first six months of this year with the silver process in operation with the corresponding period of last year when the black finish was being carried out, the difference in cost between the two processes is 4s. 6d. per stove renovated—*i.e.*, additional for the silver finish. For chromium plated finish on the hotplate frame, 8s. 6d. extra is being paid, making a total of 13s. per stove.

Dealer Co-Operation.

Unfortunately time did not permit of a full discussion, but several members indicated to me that they did not hold my views on trader co-operation. At the present time my experience is that, generally speaking, the dealers prefer to sell electrical apparatus to the exclusion of gas, and in some cases gas apparatus offered for sale by them tends to be of a shoddy character, such as we do not approve. I am of opinion that a considerable amount of business can be secured by enlisting the co-operation of the hardware merchants as part of our own sales departments, under the following broad conditions:

(1) *The Dealers*—
- (*a*) Offer for sale appliances approved by the gas undertaking.
- (*b*) Provide space for showroom and window displays of these appliances on their own premises.

(2) *The Gas Company*—
- (*a*) Pays suitable commission to the dealers and/or their salesmen.
- (*b*) Takes over the limited hire risk and also arranges for the delivery and fixing of appliances.
- (*c*) Supplies suitable literature to the dealers.
- (*d*) Arranges demonstrations and classes for the instruction of the dealers' salesmen.

Quite a lot was said during the meeting on the subject of holding companies and of the offers that had been received and are now under consideration. The discussion was of a general nature and tended to emphasize the dangers of such companies operating outside of the Gas Industry and seeking to purchase undertakings solely for financial reasons. Many members are concerned because under present conditions it is more difficult for a gas company to absorb a neighbouring undertaking than for a financial house to take over a gas company by the purchase of its shares. The question put to me of imposing statutory restrictions on the operations of the financial concerns is not one for me to answer but for the National Gas Council—who promote and defend the interests of the Gas Industry.

I quite agree with the remark that the battle depends entirely upon individual undertakings rather than upon any central body. It is upon the efficiency, activity, and courage of the local gas companies that the future of the Industry depends. As has been stated many times during the past year and in Mr. Chandler's recent Institution contribution, the establishment of personal contact with the consumer is a vital factor in the development of gas sales. We must drive home what modern gas service and modern gas equipment really mean and emphasize the reliability and effectiveness of gas.

To Colonel Carr's reference to first-class men and salaries I would only add that the remedy is in the hands of the present executives of gas undertakings who must offer more encouragement by way of opportunity and pay to the salesman, both domestic and industrial, and also to the publicity and service assistants.

In conclusion, the time spent in the preparation and presentation of the Paper has been well worth while, and I again express my thanks to our President, Mr. Bruce, and to the members for the manner in which the Paper was received. It was a great pleasure to visit St. Andrews, and I shall never forget the happy time spent there with the members of the North British Association.

Gas Undertakings' Results

Dublin.

The report and statement of accounts of the Alliance and Dublin Consumers' Gas Company for the half-year ended June 30, 1935, states that there is a profit on the revenue account of £74,193, and after providing for interest on debenture stock, interest on temporary loans, and income-tax, there remains the sum of £61,119, to which must be added a surplus of £904 transferred from the special purposes fund account and the sum of £32,729, being the balance brought from the last account, making a total of £94,752. The resolution of the extraordinary meeting of the Company on March 28 last to raise additional capital by the creation and issue of consolidated ordinary stock will, it is hoped, be implemented in the near future. In view of this contingency, the Directors recommend the declaration of a dividend at the rate of £7% per annum, less income-tax, on the consolidated ordinary stock of the Company. This will absorb the sum of £54,315, after which a balance of £40,437 will remain to be carried to the next account, this being an increase of £7,708 on the balance brought forward from the last account.

West Bromwich.

The annual report of the West Bromwich Gas Department for the year ended March 31, 1935, states that the total quantity of gas manufactured was 537,048,000 cu.ft., or 2,409,497 therms as compared with 537,615,000 cu.ft., or 2,415,024 therms the previous year, a decrease of 547,000 cu.ft. (5,527 therms), or 0·15%. The quantity of coal carbonized was 27,597 tons, as compared with 27,242 tons last year, an increase of 355 tons. The quantity of carburetted water gas made this year shows an increase of 1,997,000 cu.ft. as compared with the figure of 18,007,000 cu.ft. in the previous year, while the quantity of gas oil carbonized was 36,412 gallons as compared with 30,323 gallons last year. During the year further progress has been made with the reconstruction scheme at the Works. The quantity of coke and breeze produced was 15,689 tons, showing an increase of 55 tons, while the quantity of coke sold was 8,538 tons as compared with 8,399 tons during the previous year. The total revenue from coke and breeze sold was £10,272 as compared with £9,694 last year. The average price received for coke during the year was 24s. 0·8d. as compared with 23s. 1d. The total revenue from tar for the year is £4,055 as compared with £4,495 last year. During the year the Department laid down 5,387 yds. of new mains at an approximate cost of £2,106. These figures compare with 3,102 yds. and £1,650 for the previous year. The percentage of unaccounted-for gas due to condensation, leakage, and correction for temperature was 6·78 as compared with 8·43 last year. The total number of lamps in the Borough is 1,769, being an increase of 36 as compared with last year. The total quantity of gas sold has shown an increase of 1·62% over the previous year. The total number of consumers at the close of the year was 19,330 as compared with 18,680 at the close of the previous year, an increase of 650. The percentage of gas sold for industrial purposes is now 24·36% of the total gas sold as compared with 21·81% last year, and the increased sales this year amount to 5,523,700 cu.ft. The gross profit for the year is £12,808 as compared with £17,286 the previous year, while after meeting annual charges for interest, sinking fund, and income-tax, there is a net profit of £4,512 this year as compared with £9,076 last year.

[*Further Undertakings' Results will be found on p.* 656.]

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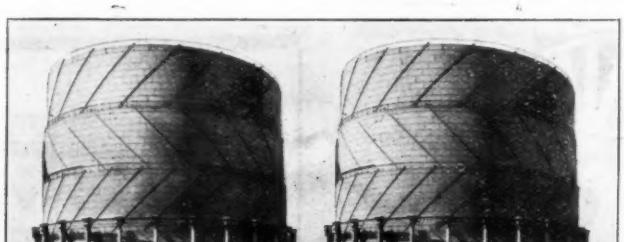

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THE ASSOCIATION OF
Public Lighting Engineers

The Twelfth Annual Meeting and Conference of the Association of Public Lighting Engineers was held in London from Sept. 9 to 12.

The Annual General Meeting was held on the Monday afternoon, when the proceedings were of a more or less formal character. The Annual Report and Statement of Accounts were presented and adopted, and an invitation to hold the Conference in 1936 in Eastbourne was accepted. At the same time, an invitation to hold the 1937 Conference in Cheltenham was extended to the Association, and there is every probability that this will also be accepted in due course.

The Council's nomination of Mr. A. Maurice Bell (Tottenham and District Gas Company) as President for 1935-36 was unanimously adopted, and Mr. E. C. Lennox (Newcastle-on-Tyne) was unanimously elected Vice-President.

There were three vacancies on the Council to fill the places of Mr. E. C. Lennox (Newcastle-on-Tyne), Mr. C. S. Shapley (Leeds), and Mr. C. H. Woodward (Bournemouth). These were filled by the election of Mr. J. H. Clegg (Southport), Mr. C. J. Winstone (London), and the re-election of Mr. C. H. Woodward (Bournemouth). The remaining members of the Council are Messrs. J. F. Colquhoun (Sheffield), H. Davies (Chesterfield), H. V. Emptage (Margate), H. W. Gregory (Harrow), J. Sellers (Manchester), and T. Wilkie (Leicester).

The Meeting concluded with the induction of the new President, Mr. A. Maurice Bell (Public Lighting Superintendent of the Tottenham and District Gas Company)—the retiring President, of course, being Mr. Alexander Forbes (Aberdeen).

The Conference proper opened on the Tuesday morning, when Mr. BELL took the chair and extended a cordial welcome to Viscount Elmley, M.P. (Parliamentary Private Secretary to the Minister of Transport).

Viscount ELMLEY said he regarded it as a great honour to have been asked to open the Twelfth Annual Conference of the Association. Reference was to be made by the President in his Address to the Committee which was set up by the Ministry of Transport last year, and he was glad to be able to say that this Committee had prepared an interim report which he hoped would very soon be published. Although he could not forecast what would be found in the Report, they could be sure that it would contain interesting and important recommendations. If these recommendations were to be carried out it would be necessary to rely to a very large extent on the co-operation of the members of the Association who, as a matter of fact, had already afforded most valuable assistance by giving evidence before the Committee. The action taken by the Minister of Transport to reduce the number of accidents on the roads had begun to show definite results. The weekly returns, when compared with the returns for the corresponding weeks last year, showed substantial reductions in the numbers of killed and injured, in spite of the fact that the number of motor vehicles on the road had greatly increased. Nevertheless, the Minister of Transport was by no means satisfied; nor were the members of the Association or the general public satisfied that all had been done that could be done. At the same time, it was not necessary for him to urge the members of the Association to take all steps within their power to render the roads safer, for this was the manifest duty of every citizen and, above all, of those who like the members of the Association were devoting their lives to the service of the community.

The PRESIDENT then delivered his Presidential Address, which was published in last week's "JOURNAL."

The following Paper was then read: "Some Notes on Street Lighting Problems and Directional Gas Lighting," by Mr. D. Chandler and Mr. A. J. Prestage (South Metropolitan Gas Company).

GAS AND ELECTRIC SUPPLY INDUSTRIES LUNCHEON.

On the Tuesday the Association was entertained at Luncheon at the Hotel Victoria by the Gas and Electric Supply Industries. There was a very large attendance of prominent men in both industries and the Chair was taken by Brigadier-General Sir HENRY P. MAYBURY, G.B.E., K.C.M.G., C.B.

The CHAIRMAN, proposing "The Association of Public Lighting Engineers," referred to the Presidential Address given by Mr. Bell at the morning session, and said that he found himself very much in agreement with Mr. Bell's conclusions. As the President had pointed out, different ideas prevailed among the many local authorities who had control of highways and were responsible for public lighting, and it was not uncommon to find a different type of lighting on opposite sides of the same street, the reason being that the street happened to be the boundary between the two authorities. The development of the two great industries represented at this Luncheon, however, had enabled the work of the Association to advance in efficiency and, with such practical assistance always available, the Association was indeed in a favourable position, and was to be congratulated upon the policy that had been adopted.

Since the Association came into existence public lighting had improved out of all recognition, and he believed that notwithstanding the difficulties and drawbacks and reluctance that might be found in getting their own way, if they would persist in their endeavours it was certain that eventually they would succeed.

Commenting upon the ever-increasing amount of traffic upon the roads and also upon the less important highways, Sir Henry suggested that the attention of the public lighting engineer could be very usefully directed to such subsidiary traffic routes. Some years ago, when endeavouring to select alternative routes for slow moving traffic in London, he consulted commercial vehicle owners to see how they would view a suggestion for the segregation of heavy traffic from the main roads to reduce congestion and accelerate movement. He was met with the statement that if the little-used streets could be better lighted they would be willing to see that the drivers of their vehicles travelled over them. Had it been possible to effect this improved lighting then, at a comparatively small cost for road works, some 17 miles of little-used roads connecting the railway termini with the London docks would have been made available for slow moving traffic, with the result that the average speed of all other vehicles on the main streets of London would have been speeded up. But that scheme had to be shelved for the time being. This was only one case out of many thousands where bad or indifferent lighting retarded the use of what would otherwise be important traffic routes.

To Assist All Road Users.

The PRESIDENT, responding to the Toast and expressing appreciation of what Sir Henry Maybury had said, remarked that it was one of the objects of the Association to assist all users of the roads, and as a body they were making every effort to apply their knowledge and experience in a real endeavour to make the roads safe at night. But whatever they were able to do they could not hope to please everybody. For instance, there was issued last June a Report by the Astronomer Royal complaining that the new systems of lighting in London were making the sky so bright that night observations were being hampered, while in other parts of the country the ladies had complained of the effect of the new lighting systems so far as the appearance of their complexions was concerned.

Mr. E. C. LENNOX (Vice-President), proposing "The Gas and Electric Supply Industries," said the fact that these two great industries which were commercially opposed and spending their days in out-bidding one another made the amalgamation of the two in one Toast rather a difficult matter; but there was no doubt whatever that the two industries had one great object in view—namely, service to the public. They were very conscious of their responsibilities and carried them out in a very efficient manner. The friendly competition between them, he could say as a member of one of these industries, had resulted in benefits to the consumer; one had only to look at cooking and heating apparatus as well as lighting apparatus in both industries to appreciate how very much more efficient these were to-day than was the case even

only a few years ago. Both industries also offered energy for all purposes at prices which suited the pockets of every member of the community in addition to all types of apparatus and the more the position was examined the more obvious it became that the competition between the two industries had been and would continue to be of the greatest possible benefit to the community at large. The public lighting engineer had not been slow to appreciate this position and it only remained for the controllers of the public purse to take the fullest advantage of the facilities which all public lighting engineers were only too keen to make use of. It had often been asked why public lighting was the Cinderella of public services and it had been facetiously suggested that it was because it had to be put out at midnight—this was suggested to him by a friend who lived in a rural district. The real reason, however, was that public lighting did not have as much spent upon it as did the other public services. Whereas street lighting expenditure had increased since 1920 by between 20% and 30% other public services—police, education, &c.—had increased in the ratio of between 80% and 100% during that period. More astonishing still was that the traffic had increased 2½ times since 1920 whereas public lighting had increased only to a very small extent, and it was utterly impossible for public lighting to be of real service to the public unless there was the necessary expenditure upon it.

Public Lighting and Road Safety.

Sir FRANCIS GOODENOUGH, C.B.E., who made the first response on behalf of the Gas Industry, referred to the fact that both the President and Lord Elmley had discussed the relation of public lighting to road safety and mentioned that at the present time the number of public lights was reaching the 1¼ million mark. Assuming that the average running cost of each lamp was £4 a year, a simple calculation showed that they were spending on the lighting of streets the meagre sum of 2s. per inhabitant per annum. Surely this was the cheapest form of insurance against accident yet discovered. But were they spending enough? Among a body of business men he need hardly point out the dangers of under-insurance. Would it not be in the interests of the whole community to spend at least 4s. per inhabitant per annum on street lighting? Interested though he was in the sale of one of the two main sources of illumination, he could still claim a certain amount of disinterestedness in making the suggestion because he was also a motorist and a citizen.

He believed those who provided the other source of illumination would agree that neither of the two industries made any great amount of profit from street lighting; especially was this so in the case of gas and electric undertakings which took every possible step to ensure the maintenance of the lamps in perfect condition and the absolute reliability of their service. Supposing the community decided to double its expenditure on public lighting, what would be the result? Those who had had experience in the preparation of estimates for public lighting would agree that it was possible to supply not double but three or four times the candle power for a very moderate increase in cost. The time was coming when those Councils who were parsimonious in the matter of the provision of artificial light in their streets would be told that that parsimony was also culpable neglect. He did not believe he was wrong in saying that the 2½ million motorists and motor-cyclists in this country—who were very directly interested in the provision of safe lighting on the roads—would welcome the ear-marking of some of the heavy taxes they paid, as motorists, for the provision of more light to make the roads during the hours of darkness safer for them and the people with whom they were very anxious not to come into collision. Light, especially that sold for the illumination of streets, was one of the least expensive of all luxuries or, rather, necessities, because good street lighting was a necessity.

Mr. A. C. CRAMB (British Electrical Development Association) who also replied to the Toast, remarked that the two industries of gas and electricity supply both obtained their raw material from the coal mines and therefore materially contributed towards finding employment for miners who, he thought everyone would agree, deserved the sincerest sympathy and support of everybody in these difficult days. The two industries were also materially contributing to the elimination of the smoke-laden atmoshpere of towns and cities. The object of the Association was to improve both in quality and quantity the standard of illumination of the streets throughout the country, and he felt he could justly claim that the electrical industry had contributed materially in assisting the Association towards that end. The electrical manufacturers deserved praise for the considerable advances they had made in the efficiency of their products which, in turn, had enabled considerable progress to be made on the electricity supply side by improved service and a steady reduction in charges. Undoubtedly the progress of street lighting was bound up with the problem of cost and every advance in lamp efficiency or in service opened up almost unlimited fields of development. Personally he felt that the advances made in the last few years were only steps towards the ultimate goal.

The PRESIDENT proposed the health of Sir Henry Maybury and thanked him sincerely for sparing the time to attend the Luncheon, and Sir HENRY briefly responded.

LUNCHEON GIVEN BY TOTTENHAM AND DISTRICT GAS COMPANY.

On Wednesday, Sept. 11, a luncheon was given by the Chairman and Directors of the Tottenham and District Gas Company at the Hotel Victoria, when Mr. HENRY WOODALL (Chairman of the Company) presided.

Proposing the toast of the Association, the CHAIRMAN said it was with great pleasure that he and his colleagues welcomed those attending the Conference as guests of the Tottenham and District Gas Company. They were proud that their Public Lighting Engineer, Mr. Bell—he nearly said illuminating engineer, and he felt it would not be an inappropriate term—had been chosen as President of the Association this year. He had read Mr. Bell's Presidential Address with great interest and it was indeed a very illuminating one. It showed the wide field that illuminating engineers had to study and illustrated clearly the importance of their work and of their co-operation in the public service. The President had pointed out the growing importance of public lighting with the great growth of motor traffic, and one of the points which had been stressed was the importance of uniformity of public lighting. Everybody had appreciated at various times how dangerous it was to go from a well lighted into a badly lighted street. He was not quite sure that he wanted to do anything to increase the night traffic, but it was bound to come; and it was therefore the business of the public lighting engineer to see that it was made as safe as possible. The suggestion by the President of another raid on the Road Fund was not unreasonable. When considering the cost of public lighting he could not help feeling the gas and electrical undertakings were expected to do a great deal for a very little, and co-operation as well as competition would be welcomed by some engaged in this work. If public lighting was to be well done it involved a very large expenditure and should be properly paid for. At present certainly some of the best public lighting was done at very little, if any, profit and was really a burden on classes of the community other than motorists. That was a point which Mr. Bell to some extent had met in his Address when he suggested the user of the road through the Road Fund should bear some of the cost of lighting, which after all was largely for his benefit and safety. He congratulated the Association on its growth and its keenness and usefulness. It was only twelve years ago that the first meeting was held in London when the attendance was 83, whereas to-day it was over 600. He expressed the hope that the Association would grow from strength to strength and continue to carry out its important duties to the great benefit of the community. They could be assured that the Tottenham and District Gas Company and its officials would do all they could to assist in that good and national work.

A Record Attendance.

Mr. A. M. BELL (President of the Association), responding to the Toast, said it was his first duty, which he shared with all the members of the Association, to convey their best thanks to the Chairman and Directors of the Tottenham and District Gas Company both for their hospitality and for the good wishes which Mr. Woodall had expressed towards the Association. This was a very proud moment for him for he was addressing the Chairman and the Directors of the Company which he had served since he left school. He was glad the success of this Conference was justifying the generous hospitality they had received and that the meeting in London was likely to prove a memorable one. For several successive years the numbers attending the Conferences had increased, but the attendance on the present occasion was considerably over 600, as the Chairman had mentioned. This far exceeded all past records and he felt very proud to hold the office of President at this time. The business of public lighting was an intricate and complex one in which many of them could share. Gas and electricity undertakings and manufacturers of lighting equipment were alike striving to bring about better public lighting, and there had been striking evidence of their activities during the tour of the lights of London on the previous evening. He was happy to think

that at this Conference their co-operation and help had been shown in a marked degree and that the interest of members of Lighting Committees, as guardians of the public requirements, had been shown by the record number of delegates who had joined in the meetings. He gladly took this oportunity of thanking all those who had been helping the good cause and had wished the Association God-speed in its efforts; he specially thanked Mr. Henry Woodall for the encouragement he had given them.

Mr. S. B. LANGLANDS (Lighting Superintendent, Glasgow), proposing a cordial vote of thanks to the Chairman and Directors of the Tottenham and District Gas Company for their wonderful hospitality, said the members of the Association also desired to thank them for the encouragement that had been given to its work and for giving them such a splendid President as Mr. Bell. Personally he felt very proud in being thus privileged to express their thanks to the Company—and the more so because it was fifty years ago this month that he joined the profession. He went in the first instance to the late Sir Dugald Clerk's firm and after six months went to Mr. McGilchrist, of Dumbarton. As Mr. McGilchrist's assistant he had seen all the developments in the Industry, but perhaps his proudest association was with the Chairman's father, the late Sir Corbet Woodall. He could not resist saying a word as to the wonderful management of the companies which served London with gas and if there was any answer to municipalization the London gas companies supplied it, and not the least of them the Tottenham Gas Company.

Mr. HENRY WOODALL, acknowledging the toast, said it had been a very great pleasure to himself and the Directors of the Tottenham Company to entertain those attending the Conference of the Association of Public Lighting Engineers. It was over fifty years ago that he had started with his father in Westminster, and he had seen many of the changes to which Mr. Langlands had referred. The Tottenham Company was proud of its Works. The Com-

Henry Woodall for the encouragement he had given them.

THE LIGHTS OF LONDON.

At the opening of the final Meeting of the Conference on Thursday morning, Sept. 12, The PRESIDENT said he wished to take the opportunity of thanking Mr. W. J. Jones, of the Lighting Service Bureau, and Mr. C. J. Winstone, of the Gas Light and Coke Company, for the tremendous amount of work which they had put into the "Lights of London" arrangements for the inspection of those attending the Conference. Many of the lighting units and installations which had been inspected had been put up specially for the purpose of the Conference.

Mr. C. J. WINSTONE, acknowledging the vote of thanks, said that they had both realized from the beginning that it was absolutely impossible to work out a tour to please everybody because there were such divergent views, but they had done their best. They were both London men and did not believe there was another city in the world where it was possible to travel seventeen miles as they had done on the Tuesday night and find such a diversity of lighting. It was really a lighting exhibition permanently staged. Mr. Jones had had nine miles of electricity and he himself had had eight miles of gas, but they had worked together most amicably, and if the delegates had been pleased—and personally he thought it was a very fine tour, and there had been plenty praise of it—he could assure them it had been a pleasure to do the job.

Mr. W. J. JONES said although the tour had shown something of a hotch-potch in the matter of street lighting that very fact had provided the opportunity of inspecting various forms of lighting. So far as electric lighting was concerned most of the special systems were already installed, and to that extent his work had really been very little. All he had had to do was to co-operate with Mr. Winstone and ensure that each of them had approximately the same number of miles of route. It had been a pleasure to him to co-operate with Mr. Winstone and to have an opportunity of serving their President.

DINNER AND DANCE.

The Association Dinner and Dance was held at the Hotel Victoria on the Wednesday evening. The Chair was taken by the PRESIDENT. It had been the original intention not to have speeches of any kind, but the President said he could not let the opportunity pass without proposing the health of their overseas guests and to express the hope that they had spent a happy time over here.

Dr. J. ADOLPH (Berlin) briefly responded to the toast.

Mr. E. C. LENNOX (Newcastle) proposed "The Ladies," which was acknowledged by Mrs. H. C. Smith, and with these few brief speeches it was possible to commence dancing at quite an early hour.

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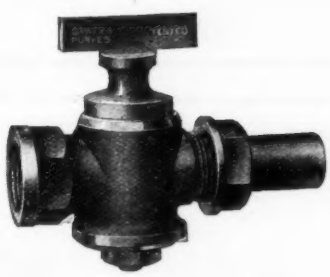

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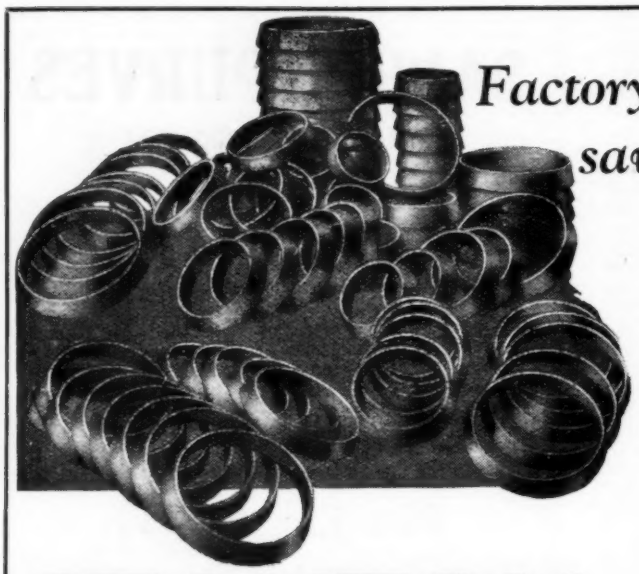

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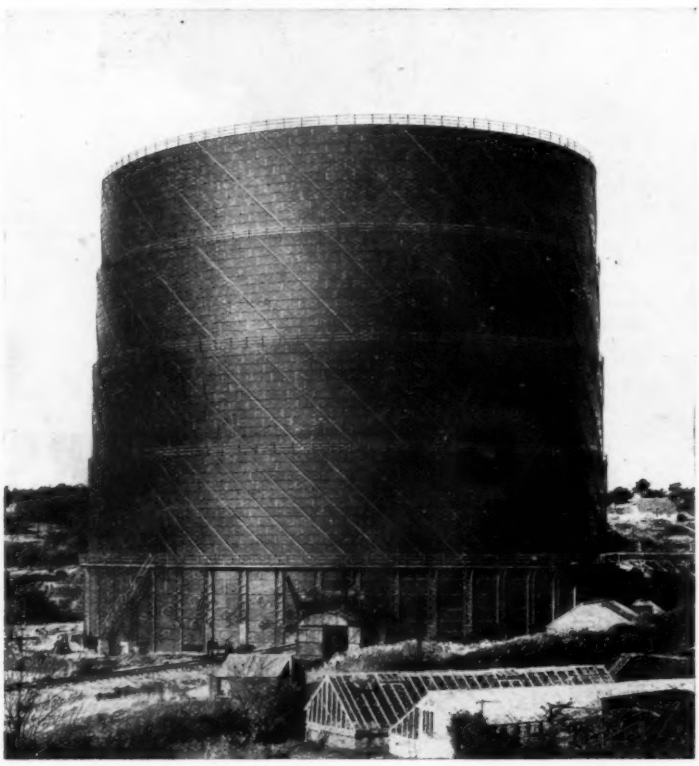

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Gas Markets and Manufactures

Stock Market Report

(For Stock and Share List, see later page)

Yet another week has passed under the cloud of uncertainty as regards International affairs, and the almost hourly happenings at Geneva have swayed markets one way or the other according to the sentiments expressed in the various speeches. Investors therefore are still adopting a waiting policy, though it is satisfactory to note that there is no marked tendency to part with sound holdings. Towards the close last week—that is after M. Laval's speech—there was a distinctly better tone and the more active stocks began to improve. British Funds were the most prominent, though the movement came too late for prices to wholly recover the week's losses. With the exception of a rally in iron and steel shares, the Industrial market was quiet, with prices on the whole a shade weaker.

As regards the volume of business, Gas stocks and shares fared little better last week than the majority of other sections, and there were no items of outstanding interest. It should not be overlooked, however, that during the past few weeks when prices in many other sections have suffered severely owing to the International situation, quotations in the Gas market have on the whole continued firm throughout. It is true there have been some slight losses, but on the other hand the market has by no means been devoid of gains. Last week, for instance, a critical one for the Stock Exchange, though price changes were few there were more rises than falls, and these included gains of 6 points in Shrewsbury ordinary to 147½, 3 in Wandsworth 4% debenture to 107½, and 2 in East Hull ordinary to 110½. It is also satisfactory to note that the stock of our largest undertaking now stands higher than it did a year ago, the present quotation of Gas Light units being 27s.-28s., against 26s. 6d-27s. at that time, a gain of 9d.

The Directors of the South Eastern Gas Corporation have declared an interim dividend on the ordinary shares of 3%, the same rate as a year ago, payable Sept. 30.

Current Sales of Gas Products

The London Market for Tar Products.

Sept. 16.

Prices of tar products continue without change as follows:
Pitch, 33s. to 34s. per ton f.o.b.
Creosote, about 6d. per gallon.
Refined tar, 4d. per gallon in bulk at makers' works.
Pure toluole, 2s. 2d. to 2s. 3d.; pure benzole, 1s. 7d. to 1s. 8d.; 95/160 solvent naphtha, 1s. 5d.; and 90/160 pyridine, about 4s. 6d. to 4s. 9d.—all per gallon naked at makers' works.

Tar Products in the Provinces.

Sept. 16.

The average prices of gas-works products during the week were: Gas-works tar, 18s. to 23s. Pitch—East Coast, 31s. to 33s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 31s. to 33s.* Toluole, naked, North, 1s. 8d. to 1s. 9d. Coal-tar crude naphtha, in bulk, North, 6¾d. to 7d. Solvent naphtha, naked, North, 1s. 5d. to 1s. 5½d. Heavy naphtha, North, 9½d. to 10½d. Creosote, *ex* works, in bulk, North, liquid and salty, 5¾d. to 5¼d.; low gravity, 5d. to 5¼d.; Scotland, 5d. to 5¼d. Heavy oils, in bulk, North, 5d. to 5¼d. Carbolic acid, 60's, 1s. 11d. to 2s. Naphthalene, £10 to £11. Salts, 60s. to 75s., bags included. Anthracene, "A" quality, 2¼d. to 3d. per minimum 40%, purely nominal; "B" quality, unsalable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

GLASGOW, *Sept.* 14.

Enquiries are more numerous, but prices remain practically unchanged on the week's trading.

Crude gas-works tar.—The actual value is 26s. to 28s. per ton *ex* works in bulk.

Pitch remains quiet at 30s. per ton f.o.b. Glasgow for export, and 30s. per ton *ex* works in bulk for home trade.

Refined tar is still available in large quantities at 2¾d. per gallon f.o.r. in buyers' packages.

Creosote oil.—There is not a great deal of new business taking place, but, stocks being low, prices are well maintained. B.E.S.A. Specification, 5⅛d. to 5⅝d. per gallon; low gravity, 5¼d. to 5½d. per gallon; and neutral oil, 5¼d. to 5½d. per gallon; all f.o.r. in bulk.

Cresylic acid is moving in larger quantities, but prices show no alteration. Pale, 97/99%, 1s. 1½d. to 1s. 2½d. per gallon; dark, 97/99%, 1s. to 1s. 0½d. per gallon; and pale, 99/100%, 1s. 2½d. to 1s. 3½d. per gallon; all *ex* works naked.

Crude naphtha.—Available supplies are commanding 4½d. to 5d. per gallon f.o.r., according to quality and district.

Solvent naphtha.—90/160 grade is 1s. 3½d. to 1s. 4d. per gallon, and 90/190 heavy naphtha is 10d. to 11d. per gallon.

Motor benzole is offered in small quantities at 1s. 3½d. to 1s. 4d. per gallon in bulk at makers' works.

Pyridines.—90/160 grade is 5s. 6d. to 6s. per gallon, and 90/140 grade 6s. to 6s. 6d. per gallon.

Benzole Prices.

These are considered to be the market prices for benzole at the present time:

	s. d.		s. d.	
Crude benzole . . .	0 9½	to	0 10	per gallon at works
Motor ,, . . .	1 3	,,	1 3½	,, ,, ,,
90% ,, . . .	1 4	,,	1 4½	,, ,, ,,
Pure ,, . . .	1 7½	,,	1 8	,, ,, ,,

Trade Notes

Tungum Alloy.

We have received from the Tungum Sales Company, Ltd., a copy of the recently published booklet entitled "Tungum Alloy," embodying the results of research work on the alloy. They inform us they will be pleased to forward copies to our readers on request.

Joints for Copper Tubing.

We have received a copy of the booklet recently published for Messrs. Abbott, Birks, & Co., 90/91, Blackfriars Road, S.E. 1, giving some details of the "Endex" and "Instantor" joints for copper tubing. Messrs. Abbott, Birks are the sole agents for the Gas Industry of Messrs. Fyffes, of Dundee, who have been specialists in joints for copper tubes since 1921. We gave particulars of the "Endex" joint in the "JOURNAL" for June 26, 1935, but attention has been called to the "Instantor" compression joint which is inteided to withstand very severe strains. Simplicity is the keynote of the designs of this joint.

Contracts Advertised To-Day

Coal.

Burton-upon-Trent Corporation. [p. 660.]
Carlisle Gas Undertaking. [p. 660.]

Tank (Pressed Steel).

Chelmsford Gas Department. [p. 660.]

Further Gas Undertakings' Results

Middleton.

The annual report on the working of the Middleton Gas Department for the year ended March 31, 1935, states that the expenditure on revenue account during the year has been £27,219, while the income has been £38,534, resulting in a gross profit of £11,315 and a net profit of £1,617, as against £10,549 and £2,606 last year. The gross profit shows an increase of £766 and the net profit a decrease of £989. The total quantity of gas manufactured during the year has been 227,009,000 cu.ft., compared with 222,004,000 cu.ft. last year, an increase of 2·23%. The gas unaccounted for was 11,175,425, against 8,683,150 cu.ft. last year, the percentage being 4·92, against 3·91. Owing to a re-arrangement of the meter readings at the March quarter, a portion of the last collection was omitted. This would have added approximately 1,600,000 cu.ft. to the gas sold and reduced the unaccounted-for gas by a similar amount. The net receipts for residuals and by-products amount to £6,105, equal to a return of 10s. 2·99d. per ton of coal carbonized, as against £6,239, or 10s. 0·65d. per ton, a decrease of £134 or 2·34d. per ton. The sale of coke realized £4,010, as against £4,281 last year, a decrease of £271. Tar receipts this year amounted to £2,094, against £1,957 last year, an increase of £137; the tonnage being 1,014, against 1,026 last year. The cost of repairs and maintenance of works was £2,082, as against £2,455, a decrease of £373. The erection of a M.A.N. waterless gasholder on the Lark Hill site was commenced during the year. The additional storage which will be provided will enable long overdue repairs to be carried out to the existing gasholders. During the year 2,353 yds. of new mains were laid. The erection of new showrooms and offices was commenced during the year on a site in Long Street, purchased at a cost of £2,000. The total value of appliances sold through the showroom on cash, credit, or hire-purchase terms was £7,135, as compared with £1,791 last year.

Truro (South-Western Corporation.)

The Directors of the Truro Gas Company report a net profit of £7,260 for the year, and recommend the payment of a final dividend of 2½% on the preference shares (making 5% for the year), and 3½% on the ordinary shares (making 6% for the year). £300 was transferred to the reserve account and £5,885 carried forward. The decreased receipts for gas from ordinary meters was largely due to the reduction in the price of gas for catering purposes, and the mild weather during the winter months considerably reduced the use of gas for heating purposes.

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STOCK AND SHARE LIST

Official Quotations on the London and Provincial Stock Exchanges

Issue. £	Share	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, Sept. 13.	Rise or Fall on Week.	Transactions, Lowest and Highest Prices During the Week.
1,551,868	Stk.	Sept. 9	7	7	Alliance & Dublin Ord. ...	130—140*	−2	...
374,000	,,	June 24	4	4	Do. 4 p.c. Deb. ...	90—100	...	99—99¼
557,655	,,	Aug. 12	7	7	Barnet Ord. 7 p.c.	165—170	...	166
300,000	1	Apl. 8	1/4½	1/9½	Bombay, Ltd.	1⅛—1⅛	...	...
178,480	Stk.	Aug. 12	9½	9½	Bournemouth sliding scale ...	222—232	...	...
550,050	,,	,,	7	7	Do. 7 p.c. max. ...	168—173	...	...
489,160	,,	,,	6	6	Do. 6 p.c. Pref. ...	147—152	...	150—152
50,000	,,	June 24	3	3	Do. 3 p.c. Deb. ...	85—90	...	...
262,025	,,	,,	4	4	Do. 4 p.c. Deb. ...	106—111	...	...
335,000	,,	,,	5	5	Do. 5 p.c. Deb. ...	123—128	...	...
357,900	,,	Aug. 12	7½	7½	Brighton, &c., 6 p.c. Con. ...	170—175	...	...
649,955	,,	,,	6½	6½	Do. 5 p.c. Con. ...	156—161	...	...
205,500	,,	,,	6	6	Do. 6 p.c. B. Pref.	142—147	...	...
1,487,500	,,	July 8	5	5	Bristol, 5 p.c. max.	120—122*a*	...	...
120,420	,,	June 7	4	4	Do. 1st 4 p.c. Deb. ...	102—104*a*	...	...
217,870	,,	,,	4	4	Do. 2nd 4 p.c. Deb. ...	101—103*a*	...	...
328,790	,,	,,	5	5	Do. 5 p.c. Deb.	127—130*a*	...	...
855,000	,,	Mar. 11	7	8	British Ord.	154—159	...	156½
100,000	,,	June 7	7	7	Do. 7 p.c. Pref.	160—165	...	...
350,000	,,	,,	5½	5½	Do. 5½ p.c. "B" Cum. Pref.	112—117	...	...
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb. ...	95—100	...	...
450,000	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	109—114	...	...
200,000	,,	,,	...	17/6§	Do. 3½ p.c. Red. Deb. ...	99—101	...	...
100,000	10	22 May '33	6	4	Cape Town, Ltd.	1—3	...	...
100,000	10	6 Nov.'33	4½	4½	Do. 4½ p.c. Pref. ...	1—3	...	...
150,000	Stk.	June 24	4½	4½	Do. 4½ p.c. Deb. ...	83—88	...	...
626,860	,,	July 22	6	6	Cardiff Con. Ord.	127—132	...	134
237,860	,,	June 7	5	5	Do. 5 p.c. Red. Deb.	107—112	...	...
157,150	,,	Aug. 12	6½	5	Chester 5 p.c. Ord.	109—114*b*	...	...
98,936	1	Mar. 25	2-	2/-	Colombo, Ltd., Ord.	1⅜—1⅞	...	...
24,500	1	,,	1/4†	1/4†	Do. 7 p.c. Pref. ...	20 6—22 6	...	...
609,204	1	Mar. 25	-/11·48	-/11·48	Colonial Gas Assn. Ltd. Ord.	20 6—22 6	...	...
296,053	1	,,	1/3·30	1/3·30	Do. 8 p.c. Pref.	26/—28/-	...	...
1,775,005	Stk	Aug. 12	6	5	Commercial Ord.	100—105	...	101½—104
620,000	,,	June 7	3	3	Do. 3 p.c. Deb. ...	88—93	+1	91—93
286,344	,,	Aug. 12	5	5	Do. 5 p.c. Deb. ...	121—126	...	123
807,560	,,	Aug. 12	7	7	Croydon sliding scale... ...	152—157	...	...
569,590	,,	,,	5	5	Do. max. div.	113—118	...	115—116½
620,385	,,	June 24	5	5	Do. 5 p.c. Deb.	123—128	...	...
542,270	,,	Aug. 12	10	7	Derby Con.	180—190*c*	...	...
55,000	,,	June 24	4	4	Do. 4 p.c. Deb.	100—105*c*	...	...
239,000	,,	Aug. 12	5	5	East Hull Ord. 5 p.c.	109—112	+2	110—111
181,625	,,	Aug. 12	6	6	East Surrey Ord 5 p.c. ...	129—134	...	...
175,609	,,	June 7	5	5	Do. 5 p.c. Deb. ...	123—128	...	...
19,313,481	,,	Aug. 12	5⅜	5⅜	Gas Light & Coke 4 p.c. Ord.	27/—28/-*f*	...	27/—27/6
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.	89—92	...	90—91
4,477,106	,,	,,	4	4	Do. 4 p.c. Con. Pref. ...	108—111	...	109—110
8,602,497	,,	June 7	3	3	Do. 3 p.c. Con. Deb. ...	91—94	...	92—93
3,642,770	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	115—118	...	...
3,500,000	,,	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	113—116	...	115
270,466	,,	Aug. 12	6	6	Harrogate New Cons. ...	132—137	...	...
140,000	1	Mar. 25	1/7½	1/7½	Hongkong & China, Ltd. ...	1½—1⅝	...	...
213,200	Stk.	Aug. 12	6	6	Hornsey Con. 3½ p.c.... ...	130—135	...	...
5,600,000	,,	May 13	10	14	Imperial Continental Cap. ...	207—212	−2	210—211
223,130	,,	July 22	3½	3½	Do. 3½ p.c. Red. Debs.	91—96	...	...
285,242	,,	Aug. 12	8½	8½	Lea Bridge 5 p.c. Ord. ...	175—180	...	178—180
2,167,410	,,	Aug. 12	6	6	Liverpool 5 p.c. Ord.... ...	134—136*b*	+1	...
245,500	,,	June 7	5	5	Do. 5 p.c. Red. Pref. ...	105—110*b*	...	...
306,083	,,	July 8	4	4	Do. 4 p.c. Deb.	103—106*b*	...	...
165,736	,,	Aug. 26	10	8	Maidstone 5 p.c. Cap. ...	182—192	...	...
63,480	,,	June 24	3	3	Do. 3 p.c. Deb. ...	82—87	...	...
75,000	,,	May 27	†10	†10	Malta & Mediterranean Metropolitan (of Melbourne)	212—222	...	...
392,000	—	Apl. 1	5½	5½	5½ p.c. Red. Deb.	100—105	...	...
231,978	Stk.	Aug. 12	5	5	M. S. Utility "C" Cons. ...	108—113	...	...
818,657	,,	,,	4	4	Do. 4 p.c. Cons. Pref.	101—106	...	...
360,075	,,	June 24	4	4	Do. 4 p.c. Deb. ...	103—108	...	...
148,955	,,	,,	5	†5	Do. 5 p.c. Deb. ...	123—128	...	...
125,000	—	July 1	3½	3½	Do. 3½ p.c. Rd. Rg. Bds.	97—100	...	...
675,000	,,	June 24	†13	†13	Montevideo, Ltd.	48—53	...	51
2,061,315	,,	Aug. 12	5½	5	Newcastle & Gateshead Con.	25/—26/-*df*	−/3	...
682,856	,,	,,	4	4	Do. 4 p.c. Pref. ...	107—108*d**	...	...
776,706	,,	June 7	3½	3½	Do. 3½ p.c. Deb. ...	100—101*d*	...	...
277,285	,,	Oct. 8	5	5	Do. 5 p.c. Deb. '43 ...	105—107*d*	...	...
274,000	,,	Aug. 12	5	5	Newport (Mon.) 5 p.c. max....	113—118*a*	...	...
225,000	,,	Aug. 12	7½	7½	North Middlesex 6 p.c. Con.	162—172	...	...
396,160	,,	Aug. 12	5	5	Northampton 5 p.c. max. ...	105—110	...	...
300,000	,,	Apl. 29	†9	†7	Oriental, Ltd.	168—173	...	...
416,617	,,	June 7	8	8	Plym'th & Stonehouse 5 p.c.	162—167	...	...
504,416	,,	Aug 12	8½	8½	Portsm'th Con. Stk. 4 p.c. Std.	170—175	...	...
241,446	,,	,,	5	5	Do. 5 p.c. max. ...	108—113	...	...
114,000	,,	July 22	5	5	Preston 5 p.c. Pref.	106—111	...	...
321,961	1	Apl. 8	...	...	Severn Val. Gas Cor. Ld. Ord.	22/—23/-	...	22 9
319,510	1	Mar. 25	...	...	,, ,, 4½ p.c. Cum. Pref.	22/—23/-	...	22 6
1,736,968	Stk.	Aug. 26	6	6	Sheffield Cons.	140—142*e*	...	...
95,000	,,	June 24	4	4	Do. 4 p.c. Deb.	102—104*e*	...	...
133,201	,,	Aug. 12	5	8½	Shrewsbury 5 p.c. Ord. ...	145—150	+6	...
90,000	10	May 27	‡3	‡3½	South African	3—4	...	...
1,061,779	1	May 13	1/2½	1/2½	South East'n Gas Cn. Ld. Ord.	28/—29/-	...	28/6
845,016	1	Mar. 11	-/10½	-/10½	Do. 4½ p.c. Red. Cum. Pref.	22/6—23/6	...	23/-
450,000	Stk.	Aug. 12	4	4	Do. 4 p.c. Red. Deb. ...	100—103	...	...
6,709,895	,,	Aug. 12	6½	5	South Met. Ord.	126—131	−1	126—128½
1,135,812	,,	,,	6	6	Do. 6 p.c. Irred. Pf. ..	147—152	...	149—150½
850,000	,,	,,	4	4	Do. 4 p.c. Irred. Pf. ...	107—110	...	108
1,895,445	,,	June 24	3	3	Do. 3 p.c. Deb. ...	89—92	...	90—92
1,000,000	,,	July 8	5	5	Do. 5 p.c. Red. Deb....	114—117	...	117
209,820	,,	Aug. 12	8½	8½	South Shields Con.	171—173*d*	...	...
1,543,795	,,	Aug. 12	6	6	South Suburban Ord 5 p.c. ...	128—133	...	127½
512,825	,,	,,	5	5	Do. 5 p.c. Pref. ...	121—126	...	121½
500,000	,,	,,	4	4	Do. 4 p.c. Pref. ...	105—110	..	...
888,587	,,	June 7	5	5	Do. 5 p.c. Deb. ...	123—128	...	....
250,000	,,	,,	4	4	Do. 4 p.c. Deb. ...	105—110	...	...
647,740	,,	Aug. 12	5	5	Southampt'n Ord. 5 p.c. max.	115—120	...	...
121,275	,,	June 7	4	4	Do. 4 p.c. Deb.	100—105	...	...
350,000	,,	Aug. 12	5½	5½	Swansea 5½ p.c. Red. Pref. ...	113—118	...	115
200,000	,,	June 7	6½	6½	Do. 6½ p.c. Red. Deb. ...	98—103	...	...
1,076,490	,,	Aug. 12	6½	6½	Tottenham and District Ord.	149—154	...	152
409,835	,,	,,	5½	5½	Do. 5½ p.c. Pref. ...	130—135	...	...
62,235	,,	,,	5	5	Do. 5 p.c. Pref. ...	120—125	...	...
334,615	,,	June 7	4	4	Do. 4 p.c. Deb. ...	101—106	...	...
369,774	,,	Aug. 12	7	7	Uxbridge, &c., 5 p.c.	150—155	...	...
108,330	,,	,,	5	5	Do. 5 p.c. Pref. ...	118—123	...	119
1,326,700	,,	Aug. 12	7	7	Wandsworth Consolidated ...	156—161	...	158
1,371 373	,,	,,	5	5	Do. 5 p.c. Pref. ...	122—127	+1	125½—127
1,317,964	,,	June 7	5	5	Do. 5 p.c. Deb. ...	125—130	...	127
338,300	,,	,,	4	4	Do. 4 p.c. Deb. ...	105—110	+3	...
158,400	,,	Aug. 12	6g	5	Winchester W.& G. 5 p.c. Con.	114—119	...	...

Quotations at :—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. *f.*—The quotation is per £1 of Stock. *g.*—Paid £3, including 10s. on account of back dividends. * Ex. div. † Paid free of income-tax. ‡ For year. § Actual for three months.

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